



May 9, 2019

Reference No. 003978

Sheri Bianchin  
Remedial Project Manager  
EPA Region 5  
77 West Jackson Blvd.  
Chicago, IL 60604-3590

Mae Willkom  
Hydrogeologist  
Wisconsin Department of Natural Resources  
1300 W. Clairemont Avenue  
Eau Claire, Wisconsin 54701

Dear Ms. Bianchin and Ms. Willkom:

**Re: EW-1 Shutdown Pilot Study Addendum-2018 Update  
Wausau Water Supply Superfund Site  
Wausau, Wisconsin**

As requested by the United States Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (WDNR), this letter provides an update to the EW-1 Shutdown Pilot Study Addendum that GHD submitted previously in January of 2018. This addendum update provides the results of groundwater monitoring conducted in the fall of 2018 and addresses minor comments on the January 2018 addendum. The original EW-1 Shutdown Pilot Study was submitted to EPA in March of 2015 and the 2018 addendum provided additional groundwater data that had been collected during the annual monitoring events conducted in the fall of 2015, 2016, and 2017.

Review of these data indicate that concentration trends of volatile organic compounds (VOCs) have changed near the West Bank source area, but that all impacted groundwater is contained and captured by the two City of Wausau remediation wells, CW3 and CW6.

The Site location is shown on Figure 1 and a Site Plan, including monitoring well locations, is presented as Figure 2.

## 1. Background

The EW-1 Shutdown Pilot Study occurred over five quarters from the fall of 2013 through the fall of 2014. The monitoring was conducted in accordance with the approved schedule presented in the EW-1 Shutdown Pilot Study Work Plan. The results of the first four monitoring events were presented in quarterly reports submitted to EPA and WDNR. The results of the fourth quarter 2014 monitoring, and the pilot study conclusions were presented in the combined "2014 Annual Monitoring Report and EW-1 Shutdown Pilot Study Report", (CRA, 2015). Upon EPA's request, the EW-1 Shutdown Pilot Study portion of the 2015 combined report was reconfigured as a stand-alone report. The reconfigured pilot study report was submitted as a draft to EPA and WDNR on May 7, 2019.

Based on the conclusions presented in the pilot study report, permanent shutdown of EW-1 was requested.



## 2. Groundwater Data Collection Since March 2015

Additional Site groundwater data were collected during the annual groundwater monitoring events conducted each year in the fall. The fall 2015, 2016, and 2017 data were reported previously in the annual monitoring reports, which were submitted in March 2016, April 2017, and February 2018 respectively. The fall 2018 monitoring data were submitted on April 16, 2019, but are also summarized in this addendum.

In addition to the groundwater data collected during the annual monitoring events, groundwater samples were collected in March 2017 from temporary wells during the vapor intrusion evaluation on the East Bank and West Bank. These data are also summarized in this addendum. Figures 2 and 3, show the locations of all Site monitoring wells and temporary wells.

### *Fall 2015 Annual Monitoring Data*

The fall 2015 annual monitoring event consisted of groundwater sampling of 22 monitoring wells, three City supply wells, and EW-1. At the request of EPA, an additional seven monitoring wells were sampled to further assess potential effects related to the shutdown of EW-1. These wells were: R1D, W50, WC4, WC7, E26, E26A, and E28A. Also, as a preliminary step for the evaluation of potential vapor intrusion, sampling of eight shallow aquifer monitoring wells was requested by EPA. These wells were: C3S, C6S, C7S, R2S, MW4B, MW7, W55A, and W57. Water levels were measured at all Site monitoring wells.

The analytical results for fall 2015 sampling are summarized in Tables 1A and 1B. None of the reported results for fall 2015 sampling indicated a significant change in the West Bank contaminant plume. The results for the seven additional wells related to the shutdown of EW-1 were mostly “non-detect”. Chloroform was detected at two locations and trichloroethene (TCE) was detected at one location, but the concentrations were all less than 0.5 µg/L.

Groundwater contours for water level measurements collected during the fall 2015 monitoring event are presented in Attachment 1. The contours show that the West Bank contaminant plume is within the groundwater containment areas created by the pumping of CW3 and CW6.

### *Fall 2016 Annual Monitoring Data*

The fall 2016 annual monitoring event consisted of groundwater sampling of 23 monitoring wells, two City supply wells, and EW-1. At the request of EPA, two additional monitoring wells, WSWS and W52A, were sampled to further assess potential effects related to the shutdown of EW-1. Water levels were measured at all Site monitoring wells.

The analytical results for fall 2016 sampling are summarized in Table 2. None of the reported results for fall 2016 sampling indicated a significant change in the West Bank contaminant plume. The results for the two additional wells related to the shutdown of EW-1 were “non-detect”.

Groundwater contours for water level measurements collected during the fall 2016 monitoring event are presented in Attachment 1. The contours show that the West Bank contaminant plume is within the groundwater containment areas created by the pumping of CW3 and CW6.



### ***March 2017 West Bank Temporary Monitoring Well Data***

As part of the vapor intrusion evaluation, groundwater samples were collected from seven temporary wells on the West Bank to better delineate the contaminant plume in the shallow portion of the aquifer. Sampling was conducted on March 8 and 9, 2017 and each sample was analyzed for West Bank-specific VOCs -- TCE, cis-1,2-dichloroethene (c12DCE), vinyl chloride, carbon tetrachloride, and chloroform. Temporary well locations are shown on Figure 3 and laboratory results are summarized in Table 3.

All sample results were non-detect or nearly non-detect and none of the reported concentrations exceeded its MCL or DNR Enforcement Standard (ES). TCE was detected with a concentration of 1.0 µg/L at W2, on Marathon Electric property, and chloroform was detected with a concentration of 2.1 µg/L at W4, which is immediately downgradient of the Marathon Electric property.

### ***Fall 2017 Annual Monitoring Data***

The fall 2017 annual monitoring event consisted of groundwater sampling of 21 monitoring wells, two City supply wells, and EW-1. At the request of EPA, three additional monitoring wells, C3S, C7S, and R1D, were sampled to further assess potential effects related to the shutdown of EW-1. Water levels were measured at all Site monitoring wells.

The analytical results for fall 2017 sampling are summarized in Table 4. None of the reported results for fall 2017 sampling indicated a significant change in the West Bank contaminant plume. With regard to the sample results for the three additional wells, TCE was detected at C7S with a concentration of 10 µg/L, which is consistent with previous results. C7S is directly downgradient from the West Bank source area. C3S, which is screened below the West Bank source area, exhibited elevated concentrations of carbon tetrachloride and chloroform. The carbon tetrachloride concentration was 150 µg/L, which exceeded the EPA maximum contaminant level (MCL) of 5 µg/L. No VOCs were detected in the sample from R1D.

City supply well CW3 was not operating during the fall 2017 monitoring event, thus groundwater contours for normal operating conditions are not available. The contours shown in Attachment 1, for 2015 and 2016 monitoring are representative of the contours under typical pumping scenarios.

### ***Fall 2018 Annual Monitoring Data***

The fall 2018 annual monitoring event consisted of groundwater sampling of 21 monitoring wells, two City supply wells, and EW-1. Water levels were measured at all Site monitoring wells.

The analytical results for fall 2018 sampling are summarized in Table 5. Although concentrations in source area wells continue to fluctuate, downgradient concentrations remain stable and the size and shape of the West Bank contaminant plume is stable.

## **3. 2015 through 2018 Groundwater Data Summary**

Since the EW-1 Shutdown Pilot Study Report was submitted in March 2015, four rounds of groundwater monitoring were conducted in the fall of each year and shallow aquifer samples were collected from seven temporary wells in the spring of 2017.



### *West Bank Source Area Monitoring Wells*

Graphs showing total chlorinated VOC (TCVOC) concentration trends over time are presented in Attachment 2. Graphs for source area wells W53A, W54, and WSWD show that VOC concentrations generally increased near the source area after EW-1 stopped operating in July 2012. Source area concentrations have fluctuated over the last six years. After an initial increase, concentrations decreased through 2016 before increasing again during 2017 and 2018. The changes in the source area VOC concentrations may be attributed to a combination of several factors, including:

- Changes in the groundwater flow direction
- Decreased groundwater flux through the source area due to a flatter flow gradient after EW-1 was shut-down
- Highly variable amounts of precipitation with associated variability in the amount of leachate created

### *West Bank Downgradient Monitoring Wells*

VOC concentrations in the monitoring wells between the source area and CW6 would be expected to increase slightly since EW-1 is no longer capturing all of the groundwater near the source area. Review of the graphs for these wells (Attachment 2 - W52, R2D, C2S, W55) indicates that concentrations increased slightly after the EW-1 shutdown, but have since declined to near pre-shutdown concentrations. More recent concentrations for R2D, R3D, and W55 suggest that the plume remnant that was in the stagnation area near R3D is migrating north toward CW6, as expected.

Typically, TCE is the only VOC detected at City well CW6. Concentrations at CW6 remain low and have not exceeded the MCL for TCE since 2009 (see graph in Attachment 2). VOC concentrations at CW3 on the East Bank have been below the MCL since 2008. Thus, the influent concentrations for both remediation wells, CW3 and CW6, are below the drinking water criteria prior to the air stripping, blending, and clarifying performed by the City treatment plant.

## 4. Updated Pilot Study Conclusions

The Pilot Study was designed to provide data to detect or confirm aquifer conditions in six principal areas:

1. **Plume Containment:** The most critical data relative to the permanent shutdown of EW-1 is that the City remediation wells continue to contain and remove the remaining contaminants in the groundwater. Water level data collected since EW-1 was shut down in mid-2012, indicate that the VOC plumes on both sides of the river are contained by the pumping of the City water supply/remediation wells CW6 and CW3. The five quarters of water level data collected during the pilot study, and the annual monitoring conducted annually through 2018, confirm that the capture zones created by the City wells are consistent and effective at containment and removal of the contaminant plumes. Groundwater contour figures for each quarter during the pilot study, plus fall 2015, 2016, and 2018 contours, are provided in Attachment 1.



2. **No Groundwater Receptors:** No private wells have been identified in the area of groundwater contamination and there are City ordinances.<sup>1</sup> that will prevent the installation of wells in the areas near the Superfund Site.
3. **Safe City Water Supply:** Groundwater pumped by the municipal wells is treated by air stripping and is also blended with un-impacted groundwater to ensure a safe water supply. Influent concentrations at CW3 and CW6 (prior to treatment) are below the Wisconsin and Federal drinking water standards. In addition to the groundwater monitoring conducted for the Superfund Site, the City monitors the post-treatment water supply by performing quarterly sampling and analyses.
4. **Remediation of R3D Stagnation Area:** The aquifer in the R3D area was near the flow divide between EW-1 and CW6. Thus, aquifer flushing of VOCs in the R3D area had been slower than other areas because this area was in a stagnation zone. Data collected from R2D, R3D, R4D, W52, and W55 over the last five years are consistent with plume migration to the north toward CW6. VOC concentrations declined at R3D, increased and then declined at R2D and W55.

Groundwater elevations and contours, as shown on the drawings in Attachment 1, suggest that the flow divide between CW6 and CW3 is south of R3D in the approximate area of R4D, which is approximately 500 to 700 feet south from where the flow divide was when EW-1 was operating. Thus, groundwater north of the R4D area is within the capture zone of CW6 and will flow north to CW6 where it will be removed and treated

5. **Continued Remediation of EW-1 Area:** As illustrated on the groundwater contour figures presented in Attachment 1, the West Bank aquifer south of EW-1 appears to be within the capture zone of CW3. Groundwater flow from this area will likely be to the east-southeast beneath the river and eventually to CW3 where it will be removed and subsequently treated by the City water treatment plant. Groundwater in the EW-1 area is near the flow divide between CW3 and CW6. If it is not captured by CW3, it will be captured by CW6, thus, it will be captured and treated regardless of the exact flow divide location.

In the vicinity of the West Bank source area, CVOCs are more prevalent in the shallower portion of the aquifer. W53A and W54 are below the old landfill source area and TCE concentrations have fluctuated up and down at both locations since the shutdown of EW-1. As described in Section 3 above, this could be due to a combination of factors, including a change in the flow direction toward CW3.

Total CVOC concentrations at C2S were below 5 µg/L from 2002 through 2012. However, concentrations increased to levels that were slightly greater than 5 µg/L after EW-1 stopped operating. This appears to be a temporary increase as the 2018 concentration was 2.5 µg/L, but it suggests that a portion of the impacted groundwater from the old landfill source area is migrating north to CW6. Prior to the shutdown of EW-1, this portion of the groundwater plume would have been captured by EW-1.

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<sup>1</sup> City of Wausau Municipal Code Chapter 23.54 (Wellhead Protection) and Chapter 19.30 (Private Water Well).



Monitoring wells IWD and E21 were sampled during the pilot study to monitor potential increases in CVOC concentrations due to West Bank plume migration beneath the river toward CW3. No concentration increases were observed at either location. The island well, IWD, was last sampled in November 2014. TCE and c12DCE were detected, but the concentrations were less than the State and Federal drinking water standards. Monitoring well E21 has been sampled annually as part of the long-term monitoring program and all results have been “non-detect”.

6. **Continued Remediation of East Bank Plume:** The shutdown of EW-1 does not impact the continued remediation of the East Bank plume. Groundwater flow patterns on the East Bank are controlled by the pumping of CW3 and the East Bank plume is completely within the capture area of CW3.

## 5. Summary

EW-1 was installed in 1990 to contain and remove the high VOC concentrations near the West Bank source area. This has been accomplished as concentrations have been reduced from thousands of parts per billion to tens of ppb, or less. By 2006, VOC concentrations at EW-1 had become asymptotic with TCVOC concentrations less than 10 µg/L (see the EW-1 chart in Attachment 2). Operation of EW-1 had continued because VOC concentrations at certain monitoring wells in or near the source area continued to exceed the cleanup standards.

EW-1 has accomplished its performance goal, which was to prevent the migration of high concentrations of VOCs (100s to 1,000s µg/L) from the source area to the West Well Field. Given that the current groundwater VOC concentrations near the former source area are much lower (less than 5 µg/L), and that EW-1 lies within the capture area of the two City remediation wells, continued operation of EW-1 is not critical relative to the protection of potential groundwater receptors.

Through a combination of more than 20 years of groundwater remediation, source area remediation, institutional controls, and continued hydraulic control and treatment of the remaining plume by CW6 and CW3, the shut down EW-1 does not create additional exposure risk to human health or the environment.

To summarize:

1. The potential for higher VOC concentrations (e.g. 1,200 µg/L at R3D in 2002) to migrate from the West Bank source area to the West Well Field has been eliminated by more than 20 years of EW-1 operation and SVE remediation of the former municipal landfill.
2. City Treatment Plant sample results do not indicate potential impact due to contaminated groundwater. VOC concentrations in the CW3 and CW6 influent samples are below drinking water standards. The West Bank plume is captured by CW6 and CW3. CW6 creates a hydraulic barrier to protect the other West Well Field supply wells.
3. Institutional controls maintained by the City of Wausau restrict the installation of private wells and can require abandonment of existing wells, although well surveys indicate that there are no private wells near the Site.



Thus, the continued operation and associated expense of EW-1 is no longer necessary and permanent shut down of EW-1 is requested.

If you have any questions, please contact me at (651) 639-0913.

Sincerely,

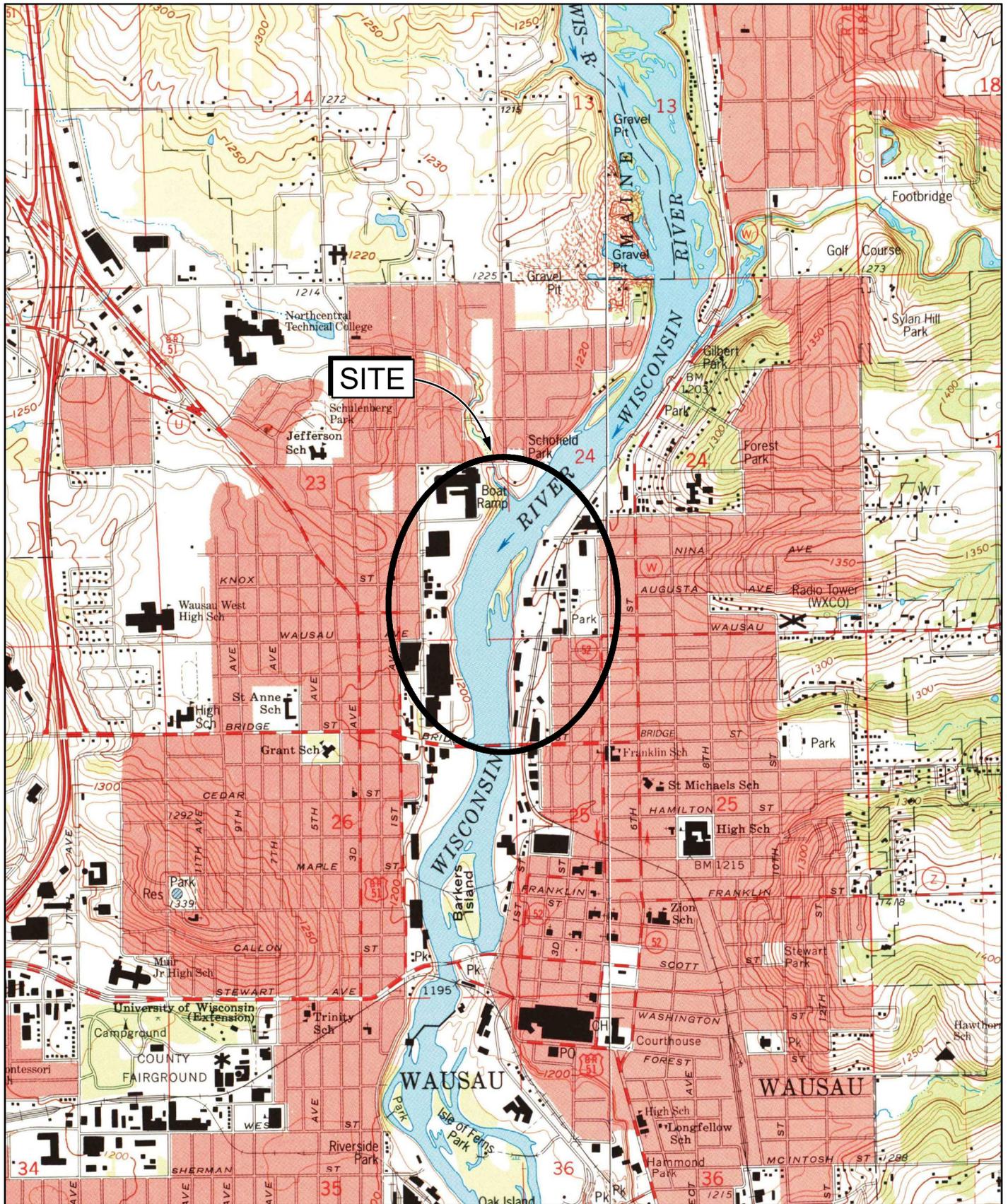
GHD

A handwritten signature in black ink, appearing to read "Chuck Ahrens", with a long horizontal flourish extending to the right.

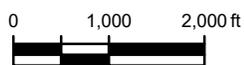
Chuck Ahrens

CA/sb/39

Encl.



Source: USGS 7.5 Minute Quads - Wausau East; Wausau West

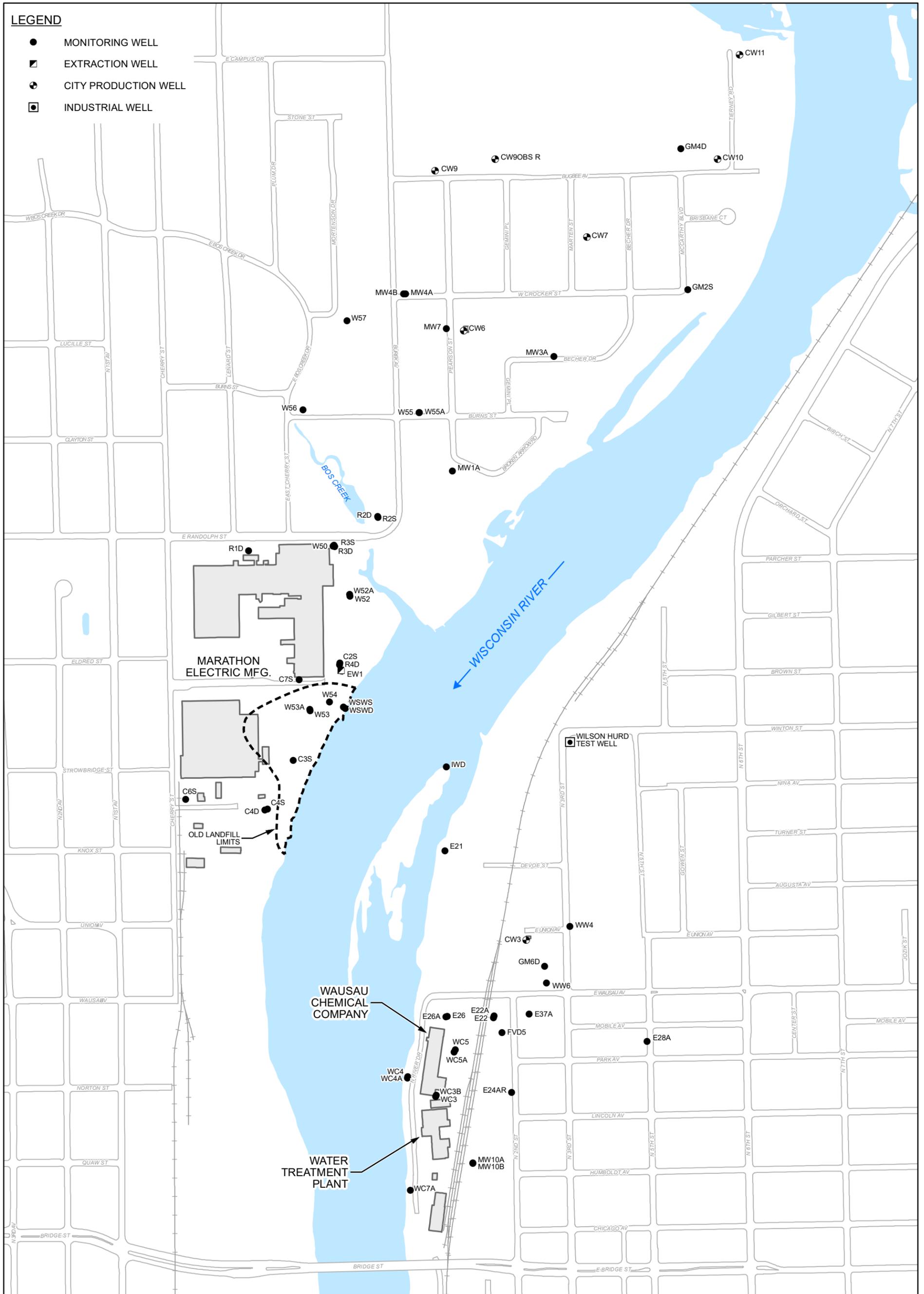


WAUSAU WATER SUPPLY NPL SITE  
 WAUSAU, WISCONSIN  
 EW1 SHUT-DOWN PILOT STUDY UPDATE

003978-00  
 May 3, 2019

SITE LOCATION

FIGURE 1



Source: Marathon County



WAUSAU WATER SUPPLY NPL SITE  
 WAUSAU, WISCONSIN  
 EW1 SHUT-DOWN PILOT STUDY UPDATE

SITE PLAN

003978-00  
 May 3, 2019

FIGURE 2



**Annual Groundwater Monitoring  
Volatile Organic Compounds Analytical Results - October 2015  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Sample Location:		WW4	WW6	WC5A	WC5A	WC3B	CW3	E21
Sample ID:		W-151012-OJ-11	W-151012-OJ-10	W-151012-OJ-12	W-151012-OJ-13	W-151012-OJ-14	W-151012-OJ-05	W-151012-OJ-07
Sample Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015
Sample Type:		N	N	N	FD	N	N	EB
Sample Depth:		-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/L	1.0 U	1.4 U	1.0 U				
1,1-Dichloroethene	ug/L	1.0 U	1.4 U	1.0 U				
Acetone	ug/L	10 U	14 U	10 U				
Benzene	ug/L	1.0 U	1.4 U	1.0 U				
Carbon tetrachloride	ug/L	1.0 U	1.4 U	1.0 U				
Chloroform	ug/L	0.55 J	1.4 U	1.0 U				
cis-1,2-Dichloroethene	ug/L	1.0 U	45	0.94 J	0.79 J	1.0 U	0.87 J	1.0 U
Ethylbenzene	ug/L	1.0 U	1.4 U	1.0 U				
Methylene chloride	ug/L	1.0 U	1.4 U	1.0 U				
Tetrachloroethene	ug/L	1.0 U	7.4	10	10	2.4	1.5	1.0 U
Toluene	ug/L	1.0 U	1.4 U	1.0 U				
Trichloroethene	ug/L	1.0 U	6.8	0.76 J	0.82 J	1.0 U	0.78 J	1.0 U
Vinyl chloride	ug/L	1.0 U	8.4	0.34 J	0.30 J	0.46 J	1.0 U	1.0 U
Xylenes (total)	ug/L	1.0 U	1.4 U	1.0 U				
TCVOC		0.55	67.6	12.04	11.91	2.86	3.15	

**Annual Groundwater Monitoring  
Volatile Organic Compounds Analytical Results - October 2015  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Sample Location:		E21	E22A	E24AR	E37A	FVD5	MW10A	MW10B
Sample ID:		W-151012-OJ-08	W-151012-OJ-09	W-151012-OJ-03	W-151012-OJ-06	W-151012-OJ-04	W-151012-OJ-02	W-151012-OJ-01
Sample Date:		10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015	10/12/2015
Sample Type:		N	N	N	N	N	N	N
Sample Depth:		-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U	2.5 U	1.0 U	18 U	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U	2.5 U	1.0 U	18 U	1.0 U	1.0 U
Acetone	ug/L	10 U	10 U	25 U	10 U	180 U	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U	2.5 U	1.0 U	14 J	1.0 U	1.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U	2.5 U	1.0 U	18 U	1.0 U	1.0 U
Chloroform	ug/L	1.0 U	1.0 U	2.5 U	1.0 U	18 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.6	61	0.69 J	18 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U	2.5 U	1.0 U	210	1.0 U	1.0 U
Methylene chloride	ug/L	1.0 U	1.0 U	2.5 U	1.0 U	18 U	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	6.1	61	0.59 J	18 U	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U	2.5 U	1.0 U	10 J	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	0.33 J	8.8	0.33 J	18 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U	6.0	1.0 U	18 U	1.0 U	1.0 U
Xylenes (total)	ug/L	1.0 U	1.0 U	2.5 U	1.0 U	720	1.0 U	1.0 U
TCVOC		0	8.03	136.8	1.61	0	0	0

**Annual Groundwater Monitoring  
Volatile Organic Compounds Analytical Results - October 2015  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Sample Location:		CW6	CW10	EW1	C2S	C4S	MW1A	R3D
Sample ID:		W-151013-OJ-15	W-151013-OJ-16	W-151013-OJ-18	W-151013-OJ-19	W-151013-OJ-17	W-151013-OJ-30	W-151013-OJ-20
Sample Date:		10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015
Sample Type:		N	N	N	N	N	N	N
Sample Depth:		-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/L	1.0 U						
1,1-Dichloroethene	ug/L	1.0 U						
Acetone	ug/L	10 U						
Benzene	ug/L	1.0 U						
Carbon tetrachloride	ug/L	1.0 U						
Chloroform	ug/L	1.0 U	1.0 U	1.0 U	1.0 U	0.36 J	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	0.50 J	1.0 U	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U						
Methylene chloride	ug/L	1.0 U						
Tetrachloroethene	ug/L	1.0 U						
Toluene	ug/L	1.0 U						
Trichloroethene	ug/L	2.4	0.62 J	1.0 U	4.7	3.2	1.0 U	1.8
Vinyl chloride	ug/L	1.0 U						
Xylenes (total)	ug/L	1.0 U						
TCVOC		2.4	0.62	0	5.2	3.56	0	1.8

**Annual Groundwater Monitoring  
Volatile Organic Compounds Analytical Results - October 2015  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Sample Location:		R4D	R2D	R2D	R2D	W56	W56	W52
Sample ID:		W-151013-OJ-26	W-151014-OJ-31	W-151014-OJ-32	W-151014-OJ-33	W-151013-OJ-27	W-151013-OJ-28	W-151013-OJ-21
Sample Date:		10/13/2015	10/14/2015	10/14/2015	10/14/2015	10/13/2015	10/13/2015	10/13/2015
Sample Type:		N	EB	FB	N	EB	N	N
Sample Depth:		-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/L	1.0 U						
1,1-Dichloroethene	ug/L	1.0 U						
Acetone	ug/L	10 U						
Benzene	ug/L	1.0 U						
Carbon tetrachloride	ug/L	1.0 U						
Chloroform	ug/L	1.0 U						
cis-1,2-Dichloroethene	ug/L	0.27 J	1.0 U	1.0 U	1.6	1.0 U	1.0 U	4.7
Ethylbenzene	ug/L	1.0 U						
Methylene chloride	ug/L	1.0 U						
Tetrachloroethene	ug/L	1.0 U						
Toluene	ug/L	1.0 U						
Trichloroethene	ug/L	3.0	0.43 J	1.0 U	32	1.0 U	1.0 U	26
Vinyl chloride	ug/L	1.0 U						
Xylenes (total)	ug/L	1.0 U						
TCVOC		3.27			33.6		0	30.7

**Annual Groundwater Monitoring  
Volatile Organic Compounds Analytical Results - October 2015  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Sample Location:		W52	W53A	W53A	W54	W55	WSWD	Lab
Sample ID:		W-151013-OJ-22	W-151013-OJ-24	W-151013-OJ-25	W-151013-OJ-23	W-151013-OJ-29	W-151112-OJ-16	TRIP BLANK
Sample Date:		10/13/2015	10/13/2015	10/13/2015	10/13/2015	10/13/2015	11/12/2015	10/14/2015
Sample Type:		FB	N	FD	N	N	N	N
Sample Depth:		-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U					
1,1-Dichloroethene	ug/L	1.0 U	1.0 U					
Acetone	ug/L	10 U	3.9 J					
Benzene	ug/L	1.0 U	1.0 U					
Carbon tetrachloride	ug/L	1.0 U	1.0 U					
Chloroform	ug/L	1.0 U	1.0 U					
cis-1,2-Dichloroethene	ug/L	1.0 U	1.0 U	1.0 U	0.43 J	1.0	0.32 J	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U					
Methylene chloride	ug/L	1.0 U	1.0 U					
Tetrachloroethene	ug/L	1.0 U	1.0 U					
Toluene	ug/L	1.0 U	1.0 U					
Trichloroethene	ug/L	1.0 U	16	16	35 J	6.8	3.2	1.0 U
Vinyl chloride	ug/L	1.0 U	1.0 U					
Xylenes (total)	ug/L	1.0 U	1.0 U					
TCVOC			16	16	35.43	7.8	3.52	

## Notes:

- U - Not detected at the associated reporting limit
- J - Estimated concentration
- EB - Equipment blank
- FB - Field blank
- FD - Field duplicate
- N - Normal

**Additional Groundwater Data for EW1 Shutdown Evaluation - November 2015**  
**Wausau Water Supply NPL Site**  
**Wausau, Wisconsin**

Sample Location:		WC4	WC7	WC7	W50	E26	E26A	E28A	R1D	R1D	Lab
Sample ID:		W-151112-OJ-03	W-151112-OJ-04	W-151112-OJ-05	W-151112-OJ-17	W-151112-OJ-02	W-151112-OJ-01	W-151112-OJ-07	W-151112-OJ-12	W-151112-OJ-11	Trip Blank
Sample Date:		11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015	11/12/2015
Sample Type:		N	N	FD	N	N	N	N	N	EB	N
Sample Depth:		-	-	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U						
1,1-Dichloroethene	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U						
Acetone	ug/L	10 U	ND (10) R	10 U	10 U						
Benzene	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U						
Carbon tetrachloride	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U						
Chloroform	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U	1.0 U	1.0 U	0.28 J	0.44 J	1.0 U	1.0 U
cis-1,2-Dichloroethene	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U						
Ethylbenzene	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U						
Methylene chloride	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U						
Tetrachloroethene	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U						
Toluene	ug/L	1.0 U	ND (1.0) R	1.0 U	0.48 J	1.0 U					
Trichloroethene	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U	0.47 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U						
Xylenes (total)	ug/L	1.0 U	ND (1.0) R	1.0 U	1.0 U						
TCVOC		0	--	0	0	0.47	0	0.28	0.44	--	

## Notes:

- U - Not detected at the associated reporting limit
- J - Estimated concentration
- EB - Equipment blank
- FB - Field blank
- FD - Field duplicate
- N - Normal
- R - WC7 data were rejected due to sample pH greater than 2. However, WC7 duplicate sample results are valid.

Table 2

**Groundwater Sampling Analytical Results - October 2016  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID:	MW10B	MW10A	E21	E21	E22A	E24AR	E37A	
Sample Name:	W-161024-RA-01	W-161024-RA-02	W-161024-RA-08	W-161024-RA-09	W-161024-RA-03	W-161024-RA-04	W-161024-RA-15	
Sample Date:	10/24/2016	10/24/2016	10/24/2016	10/24/2016 duplicate	10/24/2016	10/24/2016	10/24/2016	
Cleanup Standard or MCL	Unit							
<b>Volatile Organic Compounds</b>								
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	50 U	60 U	10 U
Benzene	5 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
cis-1,2-Dichloroethene	70 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	97	0.60 J
Ethylbenzene	700 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Tetrachloroethene	5 µg/L	0.33 J	1.0 U	1.0 U	1.0 U	120	42	0.88 J
Toluene	1000 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U
Trichloroethene	5 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	3.0 J	5.8 J	0.27 J
Vinyl chloride	2 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	7.3	1.0 U
Xylenes (total)	10,000 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	5.0 U	6.0 U	1.0 U

Table 2

**Groundwater Sampling Analytical Results - October 2016  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID:	WW4	WW6	WC3B	WC3B	WC5A	FVD5	CW3
Sample Name:	W-161024-RA-05	W-161024-RA-06	W-161024-RA-11	W-161024-RA-12	W-161024-RA-14	W-161024-RA-16	W-161024-RA-17
Sample Date:	10/24/2016	10/24/2016	10/24/2016	10/24/2016 duplicate	10/24/2016	10/24/2016	10/24/2016
Cleanup Standard or MCL	Unit						
<b>Volatile Organic Compounds</b>							
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	13 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	13 U	1.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	130 U	10 U
Benzene	5 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	19	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	13 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	13 U	1.0 U
cis-1,2-Dichloroethene	70 µg/L	1.0 U	6.2	1.0 U	1.0 U	15	0.68 J
Ethylbenzene	700 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	270	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	13 U	1.0 U
Tetrachloroethene	5 µg/L	1.0 U	1.0 U	0.55 J	1.0 U	2.9	1.5
Toluene	1000 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	14	1.0 U
Trichloroethene	5 µg/L	1.0 U	0.53 J	1.0 U	1.0 U	1.9	0.82 J
Vinyl chloride	2 µg/L	1.0 U	1.3 J	1.0 U	1.0 U	6.3	1.0 U
Xylenes (total)	10,000 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	720	1.0 U

**Groundwater Sampling Analytical Results - October 2016  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID:		W52	W52A	W53A	W54	W55	W56	R2D
Sample Name:		W-161024-RA-10	W-161025-RA-29	W-161024-RA-18	W-161025-RA-30	W-161025-RA-25	W-161025-RA-21	W-161025-RA-22
Sample Date:		10/24/2016	10/25/2016	10/24/2016	10/25/2016	10/25/2016	10/25/2016	10/25/2016
	Cleanup Standard or MCL	Unit						
<b>Volatile Organic Compounds</b>								
1,1,2-Trichloroethane		µg/L	1.0 U					
1,1-Dichloroethene		µg/L	1.0 U					
Acetone		µg/L	10 U					
Benzene	5	µg/L	1.0 U					
Carbon tetrachloride		µg/L	1.0 U					
Chloroform (Trichloromethane)		µg/L	1.0 U					
cis-1,2-Dichloroethene	70	µg/L	2.1	1.0 U	1.0 U	0.69 J	2.4	1.0 U
Ethylbenzene	700	µg/L	1.0 U					
Methylene chloride		µg/L	1.0 U					
Tetrachloroethene	5	µg/L	1.0 U					
Toluene	1000	µg/L	1.0 U					
Trichloroethene	5	µg/L	12	1.0 U	34	13.0	7.4	1.0 U
Vinyl chloride	2	µg/L	1.0 U					
Xylenes (total)	10,000	µg/L	1.0 U					

Table 2

**Groundwater Sampling Analytical Results - October 2016  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID:	R3D	R4D	MW1A	MW1A	WSWS	WSWD	C2S
Sample Name:	W-161025-RA-31	W-161024-RA-19	W-161025-RA-26	W-161025-RA-27	W-161025-RA-32	W-161025-RA-33	W-161025-RA-35
Sample Date:	10/25/2016	10/24/2016	10/25/2016	10/25/2016 duplicate	10/25/2016	10/25/2016	10/25/2016
Cleanup Standard or MCL	Unit						
<b>Volatile Organic Compounds</b>							
1,1,2-Trichloroethane	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	µg/L	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	5 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	70 µg/L	1.0 U	0.57 J	1.0 U	1.0 U	1.0 U	0.34 J
Ethylbenzene	700 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1000 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	5 µg/L	2.0	5.4	1.0 U	1.0 U	1.2	5.1
Vinyl chloride	2 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes (total)	10,000 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 2

**Groundwater Sampling Analytical Results - October 2016  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID: Sample Name: Sample Date:		C4S W-161025-RA-23 10/25/2016	C7S W-161025-RA-34 10/25/2016	CW6 W-161025-RA-20 10/25/2016	EW1 W-161025-RA-28 10/25/2016	Trip Blank TRIP BLANK 10/25/2016
	<b>Cleanup Standard or MCL</b>					
	<b>Unit</b>					
<b>Volatile Organic Compounds</b>						
		µg/L	µg/L	µg/L	µg/L	µg/L
1,1,2-Trichloroethane		1.0 U				
1,1-Dichloroethene		1.0 U				
Acetone		10 U	10 U	10 U	10 U	9.8 J
Benzene	5	µg/L 1.0 U				
Carbon tetrachloride		µg/L 1.0 U				
Chloroform (Trichloromethane)		µg/L 0.64 J	µg/L 1.0 U	µg/L 1.0 U	µg/L 1.0 U	µg/L 1.0 U
cis-1,2-Dichloroethene	70	µg/L 1.8	µg/L 1.0 U	µg/L 1.0 U	µg/L 1.0 U	µg/L 1.0 U
Ethylbenzene	700	µg/L 1.0 U				
Methylene chloride		µg/L 1.0 U				
Tetrachloroethene	5	µg/L 1.0 U				
Toluene	1000	µg/L 1.0 U				
Trichloroethene	5	µg/L 5.5	µg/L 14	µg/L 3.3	µg/L 1.0 U	µg/L 1.0 U
Vinyl chloride	2	µg/L 1.0 U				
Xylenes (total)	10,000	µg/L 1.0 U				

Notes:

U - Not detected at the associated reporting limit

J - Estimated concentration

Shaded cells indicate concentration exceeded the Site Cleanup Standard

**Groundwater Delineation Sample Results  
West Bank Temporary Wells  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

East Bank	Date	Water Table Depth (ft bgs)	Sample Depth (ft bgs)	Units	Trichloroethene	cis-1,2-Dichloroethene	Vinyl chloride	Carbon tetrachloride	Chloroform
<b>West Bank</b>									
W1	3/8/2017	33	33-35	ug/l	0.33 U	0.30 U	0.45 U	0.35 U	0.31 U
W2	3/9/2017	30	31-35	ug/l	1.0	0.30 U	0.45 U	0.35 U	0.31 U
W3	3/9/2017	34	34-38	ug/l	0.33 U/0.33 U	0.30 U/0.30 U	0.45 U/0.45 U	0.35 U/0.35 U	0.31 U/0.31 U
W4	3/9/2017	23	23-25	ug/l	0.33 U	0.30 U	0.45 U	0.35 U	2.1
W5	3/9/2017	9	10-12	ug/l	0.33 U	0.30 U	0.45 U	0.35 U	0.31 U
W6	3/9/2017	9.5	10-12	ug/l	0.33 U	0.30 U	0.45 U	0.35 U	0.31 U
W7	3/9/2017	28	29-32	ug/l	0.33 U	0.30 U	0.45 U	0.35 U	0.31 U
Wisconsin Groundwater Enforcement Standard				ug/l	<b>5</b>	<b>70</b>	<b>0.2</b>	<b>5</b>	<b>6</b>

Notes:

- indicates detection

**Laboratory Results Summary  
October 2017 Groundwater Sampling Event  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID:		C3S	C7S	R1D	R1D	C2S	C4S
Sample Name:		W-171002-RA-11	W-171003-RA-30	W-171003-RA-26	W-171003-RA-27	W-171003-RA-17	W-171002-RA-10
Sample Date:		10/02/2017	10/03/2017	10/03/2017	10/03/2017 Duplicate	10/03/2017	10/02/2017
		West Bank	West Bank	West Bank	West Bank	West Bank	West Bank
Parameters	Unit						
<b>Volatile Organic Compounds</b>	<b>EPA MCL</b>						
1,1,2-Trichloroethane	5 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	-- µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	5 µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	5 µg/L	150	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	6 µg/L	66	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	70 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	0.59 J	1.0 U
Ethylbenzene	700 µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	5 µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	5 µg/L	0.53 J	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1,000 µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	5 µg/L	3.1	10	0.50 U	0.50 U	5.8	3.7
Vinyl chloride	2 µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Xylenes (total)	10,000 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

**Laboratory Results Summary  
October 2017 Groundwater Sampling Event  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID:		MW1A	WSWD	R2D	R3D	R4D	W52
Sample Name:		W-171003-RA-20	W-171003-RA-28	W-171003-RA-23	W-171003-RA-29	W-171003-RA-16	W-171003-RA-19
Sample Date:		10/03/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017
Parameters	Unit	West Bank					
<b>Volatile Organic Compounds</b>	<b>EPA MCL</b>						
1,1,2-Trichloroethane	5 µg/L	1.0 U					
1,1-Dichloroethene	7 µg/L	1.0 U					
Acetone	-- µg/L	5.0 U					
Benzene	5 µg/L	0.50 U					
Carbon tetrachloride	5 µg/L	1.0 U					
Chloroform (Trichloromethane)	6 µg/L	2.0 U					
cis-1,2-Dichloroethene	70 µg/L	1.0 U	1.0 U	1.7	1.0 U	0.74 J	2.2
Ethylbenzene	700 µg/L	0.50 U					
Methylene chloride	5 µg/L	5.0 U					
Tetrachloroethene	5 µg/L	1.0 U					
Toluene	1,000 µg/L	0.50 U					
Trichloroethene	5 µg/L	0.50 U	1.5	15	2.2	1.5	14
Vinyl chloride	2 µg/L	0.50 U					
Xylenes (total)	10,000 µg/L	1.0 U					

**Laboratory Results Summary  
October 2017 Groundwater Sampling Event  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID:		W53A	W54	W55	W55	W56	CW6
Sample Name:		W-171002-RA-12	W-171002-RA-13	W-171003-RA-21	W-171003-RA-22	W-171003-RA-25	W-171003-RA-15
Sample Date:		10/02/2017	10/02/2017	10/03/2017	10/03/2017	10/03/2017	10/03/2017
		West Bank	West Bank	West Bank	Duplicate West Bank	West Bank	West Bank
Parameters	Unit						
<b>Volatile Organic Compounds</b>	<b>EPA MCL</b>						
1,1,2-Trichloroethane	5 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	-- µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	5 µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	5 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	6 µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	70 µg/L	1.0 U	1.4	5.6	5.7	1.0 U	1.0 U
Ethylbenzene	700 µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	5 µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	5 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	1,000 µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	5 µg/L	74	6.6	7.3	7.3	0.50 U	3.0
Vinyl chloride	2 µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Xylenes (total)	10,000 µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

**Laboratory Results Summary  
October 2017 Groundwater Sampling Event  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID:		EW1	E21	E22A	E24AR	E37A	MW10B
Sample Name:		W-171003-RA-18	W-171002-RA-05	W-171002-RA-08	W-171003-RA-31	W-171003-RA-14	W-171002-RA-09
Sample Date:		10/03/2017	10/02/2017	10/02/2017	10/03/2017	10/03/2017	10/02/2017
Parameters	Unit	West Bank	East Bank				
<b>Volatile Organic Compounds</b>	<b>EPA MCL</b>						
1,1,2-Trichloroethane	5 µg/L	1.0 U					
1,1-Dichloroethene	7 µg/L	1.0 U	1.0 U	1.0 U	0.55 J	1.0 U	1.0 U
Acetone	-- µg/L	5.0 U					
Benzene	5 µg/L	0.50 U					
Carbon tetrachloride	5 µg/L	1.0 U					
Chloroform (Trichloromethane)	6 µg/L	2.0 U					
cis-1,2-Dichloroethene	70 µg/L	1.0 U	1.0 U	1.0 U	53	1.8	1.0 U
Ethylbenzene	700 µg/L	0.50 U					
Methylene chloride	5 µg/L	5.0 U					
Tetrachloroethene	5 µg/L	1.0 U	1.0 U	21	12	1.0 U	1.0 U
Toluene	1,000 µg/L	0.50 U					
Trichloroethene	5 µg/L	0.50 U	0.50 U	0.85	4.6	0.50 U	0.50 U
Vinyl chloride	2 µg/L	0.50 U	0.50 U	0.50 U	7.9	1.6	0.50 U
Xylenes (total)	10,000 µg/L	1.0 U					

**Laboratory Results Summary  
October 2017 Groundwater Sampling Event  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID:			WC3B	WC5A	WC5A	WW4	WW6
Sample Name:			W-171002-RA-03	W-171002-RA-01	W-171002-RA-02	W-171002-RA-07	W-171002-RA-06
Sample Date:			10/02/2017	10/02/2017	10/02/2017	10/02/2017	10/02/2017
			East Bank	East Bank	Duplicate East Bank	East Bank	East Bank
Parameters		Unit					
<b>Volatile Organic Compounds</b>	<b>EPA MCL</b>						
1,1,2-Trichloroethane	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	--	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Benzene	5	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	5	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	6	µg/L	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	70	µg/L	1.0 U	90	95	1.0 U	7.9
Ethylbenzene	700	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Methylene chloride	5	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Tetrachloroethene	5	µg/L	13	6.7	7.6	1.0 U	1.0 U
Toluene	1,000	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	5	µg/L	0.40 J	2	2.1	0.50 U	0.36 J
Vinyl chloride	2	µg/L	0.50 U	16	17	0.50 U	0.28 J
Xylenes (total)	10,000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Notes:

U - Not detected at the associated reporting limit

J - Estimated value below the reporting limit, but above the method detection limit

The method detection limit for vinyl chloride is 0.20 ug/L

Shaded cells indicate concentration exceeds the EPA Maximum Contaminant Level for drinking water

**Laboratory Results Summary  
September 2018 Groundwater Sampling Event  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

<b>Location ID:</b>	<b>CW3</b>	<b>E21</b>	<b>E22A</b>	<b>E24AR</b>	<b>E37A</b>	<b>WC3B</b>
<b>Sample Name:</b>	<b>W-180927-RA-27</b>	<b>W-180927-RA-20</b>	<b>W-180927-RA-24</b>	<b>W-180927-RA-29</b>	<b>W-180927-RA-23</b>	<b>W-180927-RA-21</b>
<b>Sample Date:</b>	<b>09/27/2018</b>	<b>09/27/2018</b>	<b>09/27/2018</b>	<b>09/27/2018</b>	<b>09/27/2018</b>	<b>09/27/2018</b>

Parameters	Unit							
<b>Volatile Organic Compounds</b>	<b>EPA MCL</b>							
1,1,2-Trichloroethane	5	µg/L	1.0 U					
1,1-Dichloroethene	7	µg/L	1.0 U					
Acetone	--	µg/L	5.0 U	5.0 U	5.0 U	5.0 U	6.3 U	5.0 U
Benzene	5	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.22 J	0.50 U
Carbon tetrachloride	5	µg/L	1.0 U					
Chloroform (Trichloromethane)	6	µg/L	2.0 U					
cis-1,2-Dichloroethene	70	µg/L	0.73 J	1.0 U	1.0 U	3.0	19	1.0 U
Ethylbenzene	700	µg/L	0.50 U					
Methylene chloride	5	µg/L	5.0 U					
Tetrachloroethene	5	µg/L	1.1	1.0 U	10	1.2	1.3	70
Toluene	1,000	µg/L	0.50 U	0.32 J	0.50 U	0.50 U	0.50 U	0.25 J
Trichloroethene	5	µg/L	1.0	0.50 U	0.22 J	0.73	0.81	1.4
Vinyl chloride	2	µg/L	1.0 U	1.0 U	1.0 U	1.8	2.3	1.0 U
Xylenes (total)	10,000	µg/L	1.0 U					

**Laboratory Results Summary  
September 2018 Groundwater Sampling Event  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

<b>Location ID:</b>	<b>WC5A</b>	<b>MW10B</b>	<b>WW4</b>	<b>WW6</b>	<b>WW6</b>	<b>CW6</b>
<b>Sample Name:</b>	<b>W-180927-RA-22</b>	<b>W-180927-RA-30</b>	<b>W-180927-RA-19</b>	<b>W-180927-RA-17</b>	<b>W-180927-RA-18</b>	<b>W-180926-RA-05</b>
<b>Sample Date:</b>	<b>09/27/2018</b>	<b>09/27/2018</b>	<b>09/27/2018</b>	<b>09/27/2018</b>	<b>09/27/2018</b> Duplicate	<b>09/26/2018</b>

Parameters	Unit						
<b>Volatile Organic Compounds</b>	<b>EPA MCL</b>						
1,1,2-Trichloroethane	5 µg/L	1.0 U					
1,1-Dichloroethene	7 µg/L	1.0 U					
Acetone	-- µg/L	5.6 U	5.0 U				
Benzene	5 µg/L	0.50 U					
Carbon tetrachloride	5 µg/L	1.0 U					
Chloroform (Trichloromethane)	6 µg/L	2.0 U					
cis-1,2-Dichloroethene	70 µg/L	94	1.0 U	1.0 U	35	31	1.0 U
Ethylbenzene	700 µg/L	0.50 U					
Methylene chloride	5 µg/L	5.0 U					
Tetrachloroethene	5 µg/L	7.1	1.0 U				
Toluene	1,000 µg/L	0.16 J	0.50 U	0.33 J	0.39 J	0.50 U	0.50 U
Trichloroethene	5 µg/L	0.60	0.17 J	0.50 U	2.6	2.2	2.4
Vinyl chloride	2 µg/L	30	1.0 U				
Xylenes (total)	10,000 µg/L	1.0 U					

**Laboratory Results Summary  
September 2018 Groundwater Sampling Event  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

<b>Location ID:</b>	<b>EW1</b>	<b>C2S</b>	<b>C4S</b>	<b>MW1A</b>	<b>R2D</b>	<b>R2D</b>
<b>Sample Name:</b>	W-180927-RA-28	W-180927-RA-16	W-180926-RA-06	W-180927-RA-11	W-180926-RA-01	W-180926-RA-02
<b>Sample Date:</b>	09/27/2018	09/27/2018	09/26/2018	09/27/2018	09/26/2018	09/26/2018 Duplicate

Parameters	EPA MCL	Unit						
<b>Volatile Organic Compounds</b>								
1,1,2-Trichloroethane	5	µg/L	1.0 U					
1,1-Dichloroethene	7	µg/L	1.0 U					
Acetone	--	µg/L	5.0 U	5.0 U	5.0 U	14 U	5.0 U	5.0 U
Benzene	5	µg/L	0.50 U					
Carbon tetrachloride	5	µg/L	1.0 U					
Chloroform (Trichloromethane)	6	µg/L	2.0 U					
cis-1,2-Dichloroethene	70	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.9	1.8
Ethylbenzene	700	µg/L	0.50 U					
Methylene chloride	5	µg/L	5.0 U					
Tetrachloroethene	5	µg/L	1.0 U					
Toluene	1,000	µg/L	0.34 J	0.33 J	0.50 U	0.50 U	0.50 U	0.50 U
Trichloroethene	5	µg/L	0.50 U	2.5	2.0	2.0	14	13
Vinyl chloride	2	µg/L	1.0 U					
Xylenes (total)	10,000	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	0.22 J	1.0 U

**Laboratory Results Summary  
September 2018 Groundwater Sampling Event  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

<b>Location ID:</b>	<b>R3D</b>	<b>R4D</b>	<b>W52</b>	<b>W53A</b>	<b>W54</b>	<b>W55</b>
<b>Sample Name:</b>	W-180926-RA-07	W-180927-RA-15	W-180926-RA-09	W-180927-RA-14	W-180927-RA-31	W-180927-RA-13
<b>Sample Date:</b>	09/26/2018	09/27/2018	09/26/2018	09/27/2018	09/27/2018	09/27/2018

Parameters	EPA MCL	Unit	R3D	R4D	W52	W53A	W54	W55
<b>Volatile Organic Compounds</b>								
1,1,2-Trichloroethane	5	µg/L	1.0 U					
1,1-Dichloroethene	7	µg/L	1.0 U					
Acetone	--	µg/L	5.0 U					
Benzene	5	µg/L	0.50 U	0.26 J	0.50 U	0.50 U	0.50 U	0.50 U
Carbon tetrachloride	5	µg/L	1.0 U					
Chloroform (Trichloromethane)	6	µg/L	2.0 U					
cis-1,2-Dichloroethene	70	µg/L	1.0 U	1.0 U	0.89 J	1.0 U	23	5.9
Ethylbenzene	700	µg/L	0.50 U					
Methylene chloride	5	µg/L	5.0 U					
Tetrachloroethene	5	µg/L	1.0 U					
Toluene	1,000	µg/L	0.50 U					
Trichloroethene	5	µg/L	2.1	0.68	3.9	110	73	5.5
Vinyl chloride	2	µg/L	1.0 U					
Xylenes (total)	10,000	µg/L	1.0 U					

**Laboratory Results Summary  
September 2018 Groundwater Sampling Event  
Wausau Water Supply NPL Site  
Wausau, Wisconsin**

Location ID:	W56		W56	WSWD
Sample Name:	W-180926-RA-03		W-180926-RA-04	W-180926-RA-10
Sample Date:	09/26/2018		09/26/2018 Duplicate	09/26/2018
Parameters	Unit			
<b>Volatile Organic Compounds</b>	<b>EPA MCL</b>			
1,1,2-Trichloroethane	5	µg/L	1.0 U	1.0 U
1,1-Dichloroethene	7	µg/L	1.0 U	1.0 U
Acetone	--	µg/L	5.0 U	5.0 U
Benzene	5	µg/L	0.50 U	0.50 U
Carbon tetrachloride	5	µg/L	1.0 U	1.0 U
Chloroform (Trichloromethane)	6	µg/L	2.0 U	2.0 U
cis-1,2-Dichloroethene	70	µg/L	1.0 U	1.0 U
Ethylbenzene	700	µg/L	0.50 U	0.50 U
Methylene chloride	5	µg/L	5.0 U	5.0 U
Tetrachloroethene	5	µg/L	1.0 U	1.0 U
Toluene	1,000	µg/L	0.50 U	0.50 U
Trichloroethene	5	µg/L	0.50 U	4.3
Vinyl chloride	2	µg/L	1.0 U	1.0 U
Xylenes (total)	10,000	µg/L	1.0 U	1.0 U

Notes:

U - Not detected at the associated reporting limit

J - Estimated value below the reporting limit, but above the method detection limit

The method detection limit for vinyl chloride is 0.20 ug/L

Shaded cells indicate concentration exceeds the EPA Maximum Contaminant Level for Drinking Water

# Attachment 1 Groundwater Contours

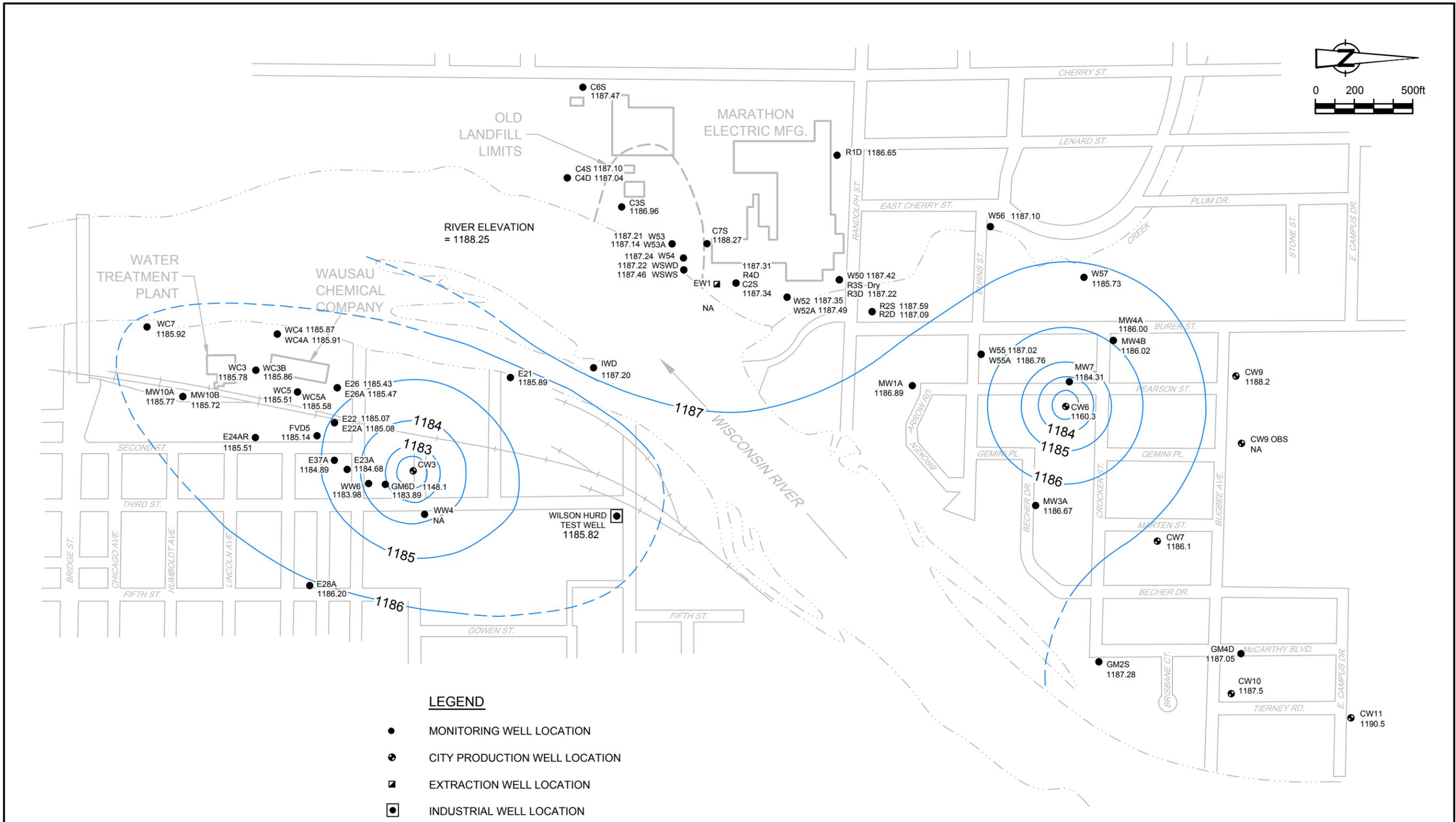


figure 2.1  
 GROUNDWATER ELEVATIONS  
 NOVEMBER 11, 12, 2013  
 WAUSAU WATER SUPPLY NPL SITE  
 Wausau, Wisconsin



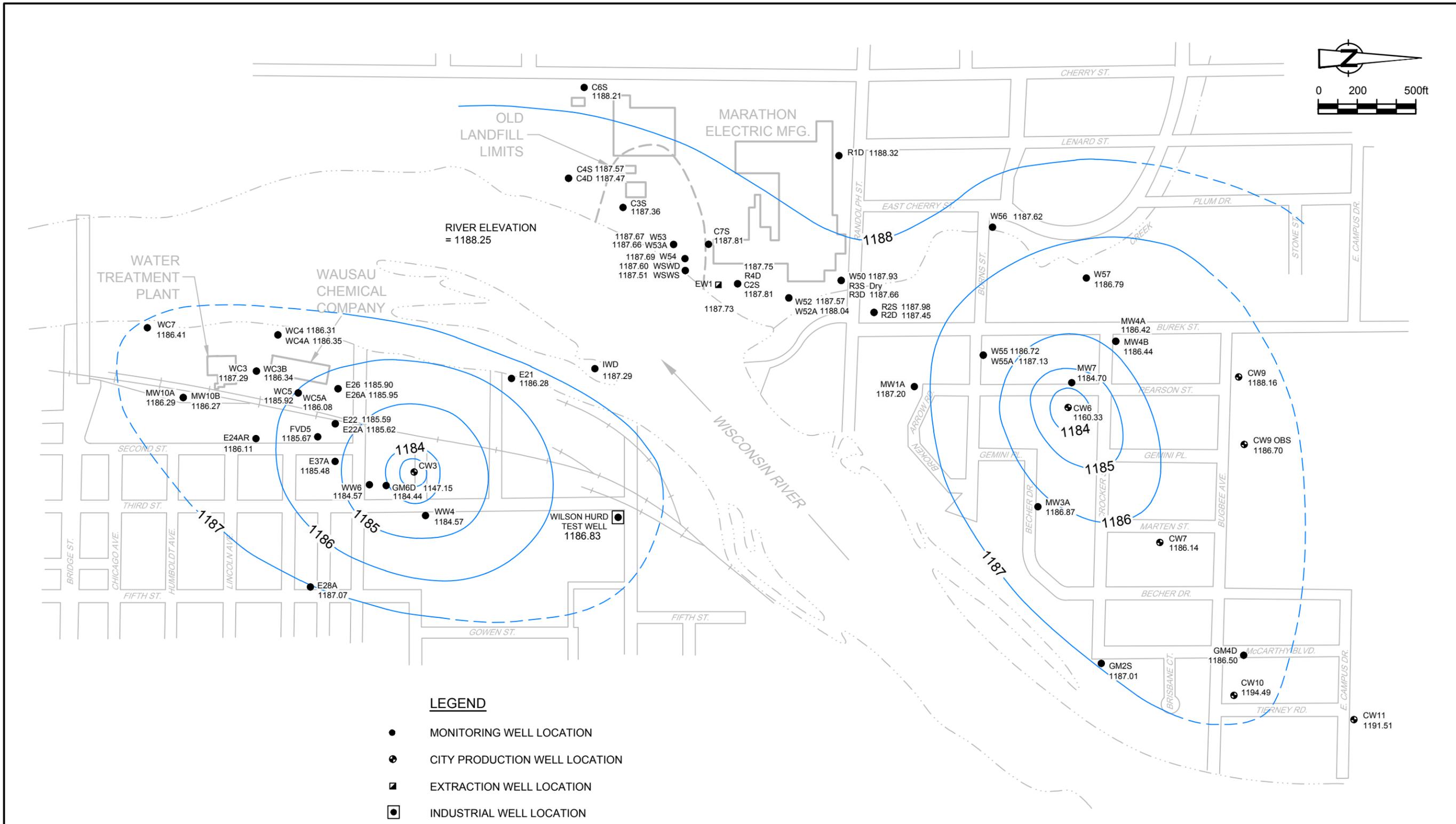


figure 2.1  
 GROUNDWATER ELEVATIONS  
 NOVEMBER 3, 4, 2014  
 WAUSAU WATER SUPPLY NPL SITE  
 Wausau, Wisconsin



SOURCE: RMT INC. FIGURE 1, 5/14/87.

03978-00(034)GN-WA002 FEB 2/2015

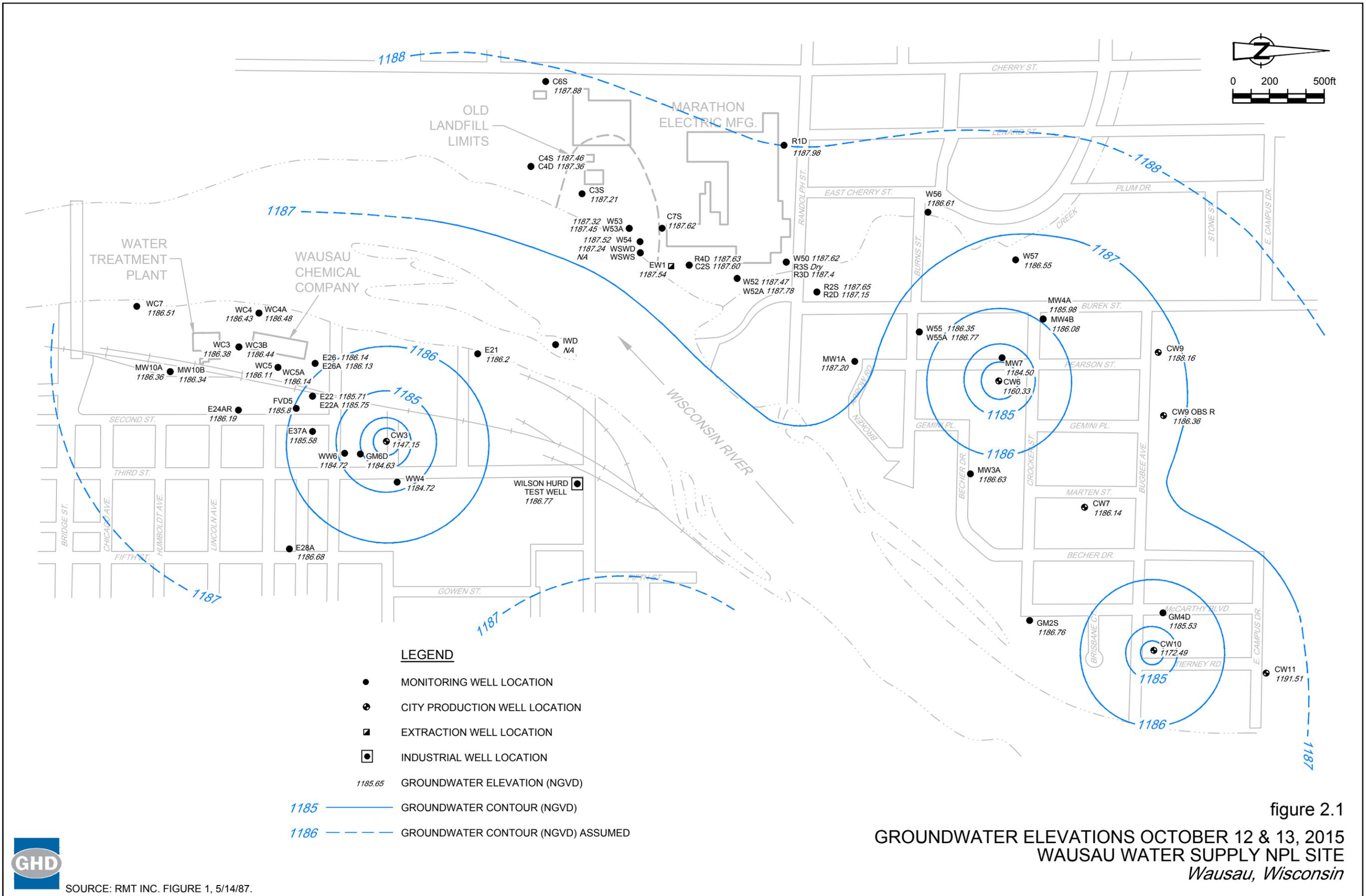


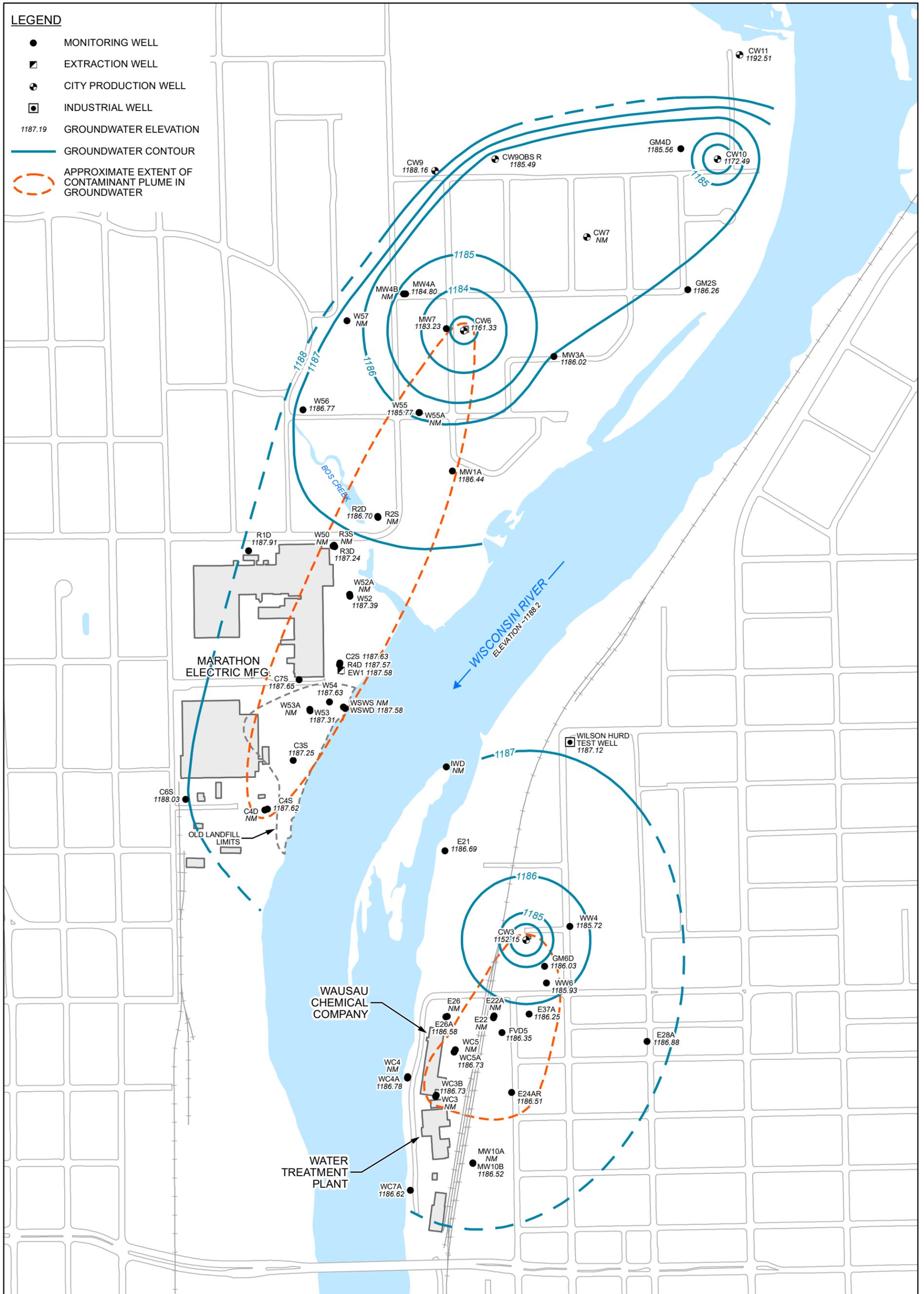
figure 2.1

GROUNDWATER ELEVATIONS OCTOBER 12 & 13, 2015  
WAUSAU WATER SUPPLY NPL SITE  
Wausau, Wisconsin



SOURCE: RMT INC. FIGURE 1, 5/14/87.





Source: Marathon County



WAUSAU WATER SUPPLY NPL SITE  
 WAUSAU, WISCONSIN  
 2018 ANNUAL MONITORING REPORT

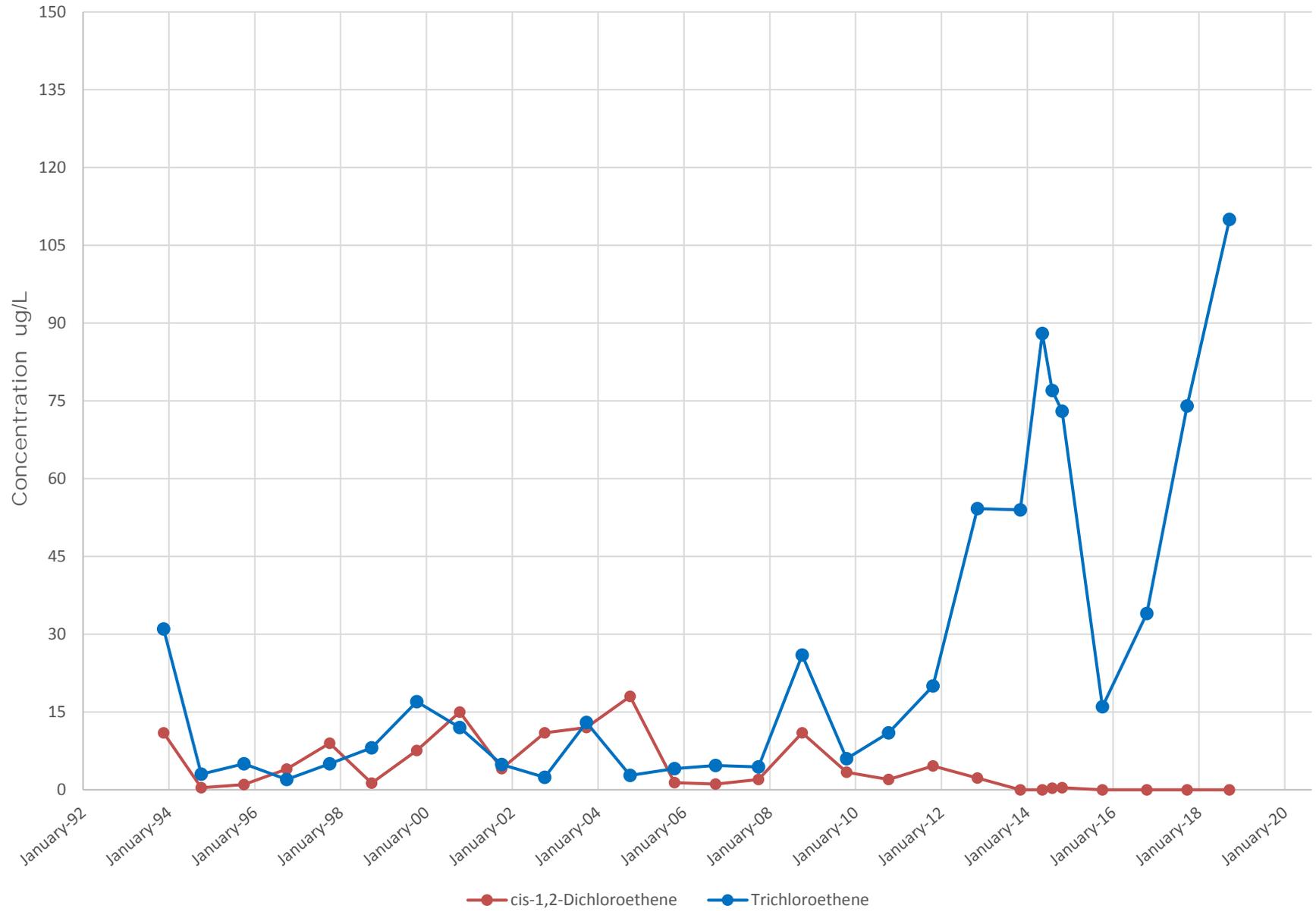
003978-00  
 Feb 27, 2019

GROUNDWATER CONTOURS - SEPTEMBER 2018

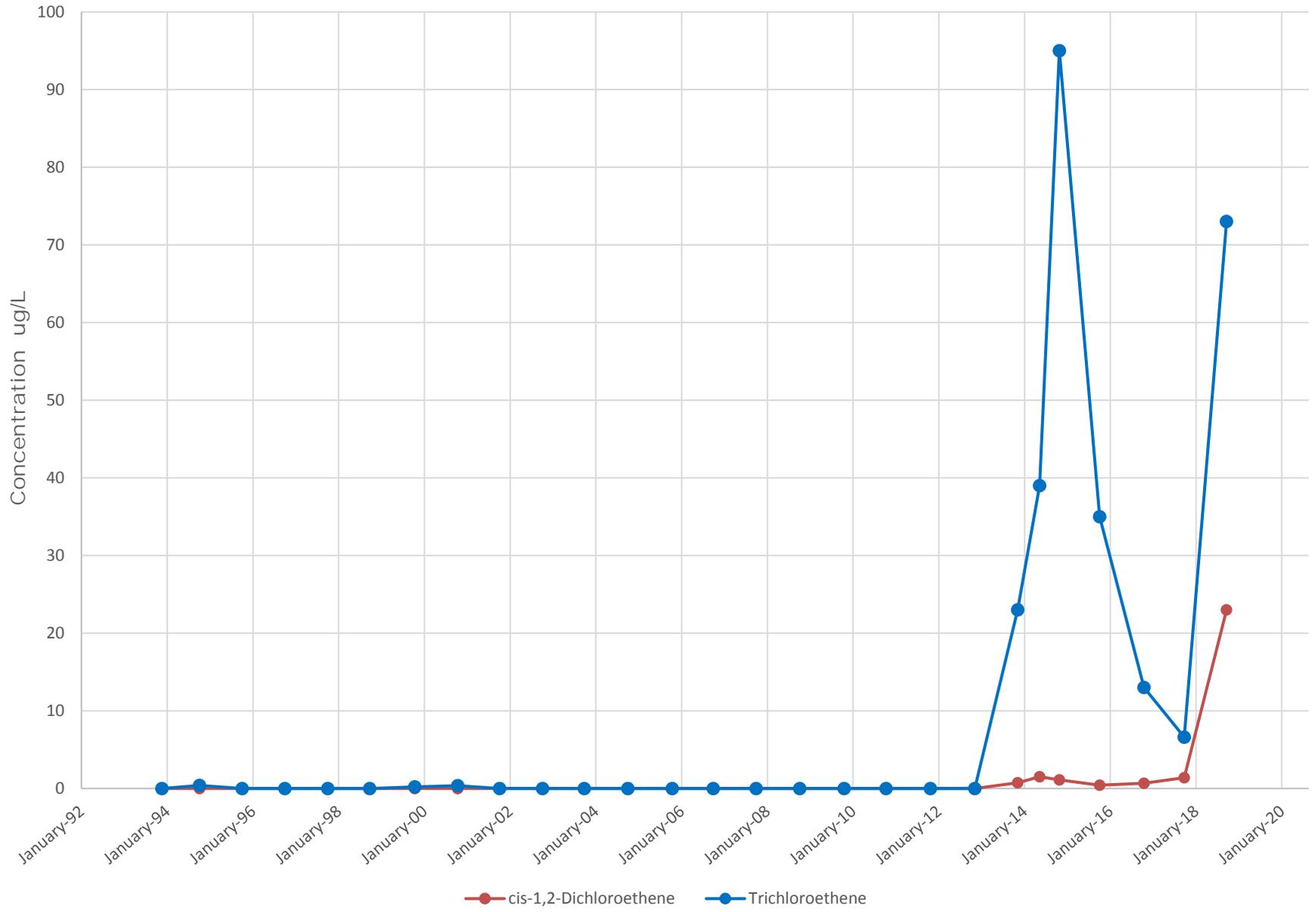
FIGURE 2.1

# Attachment 2 Graphs

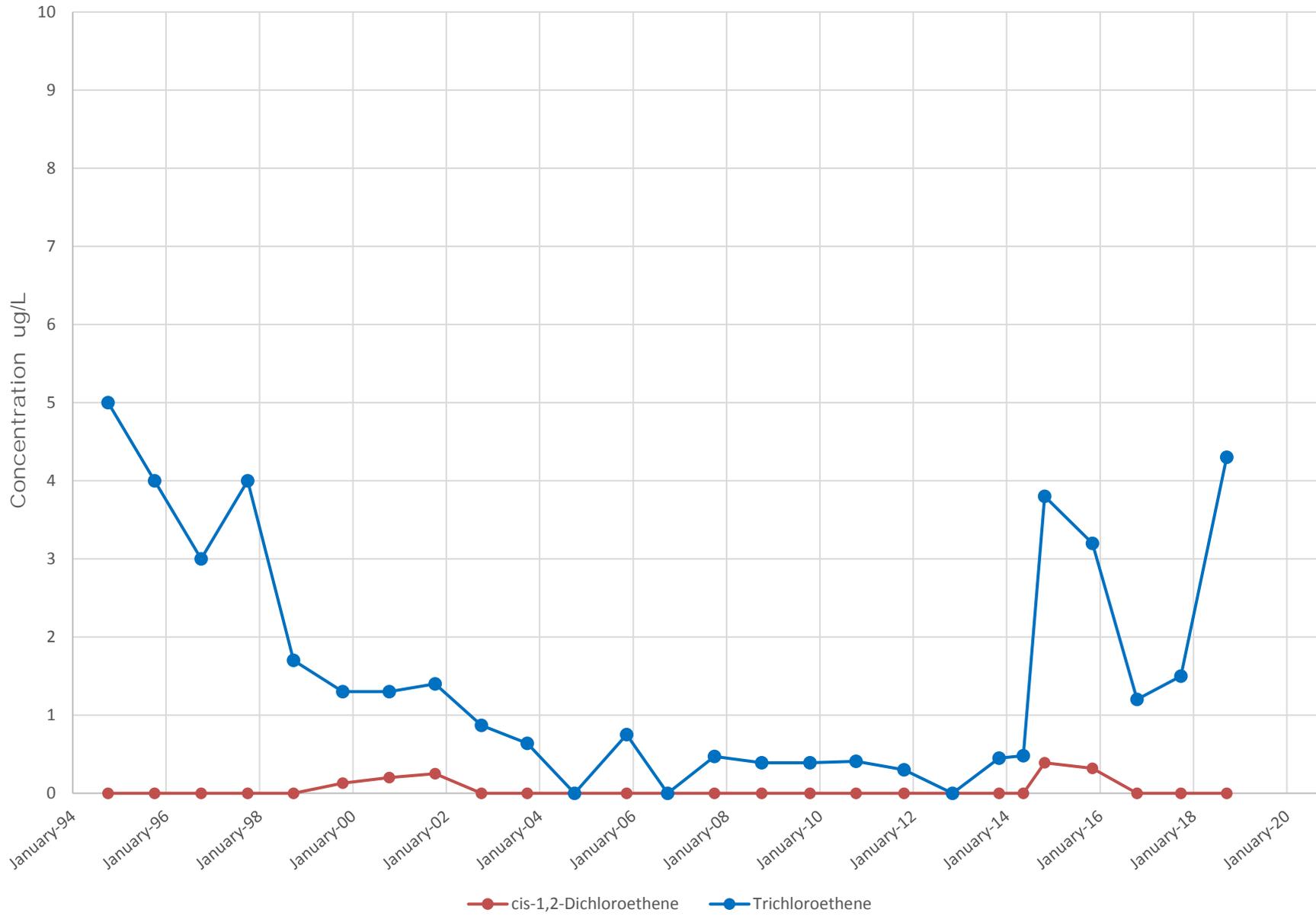
# W53A



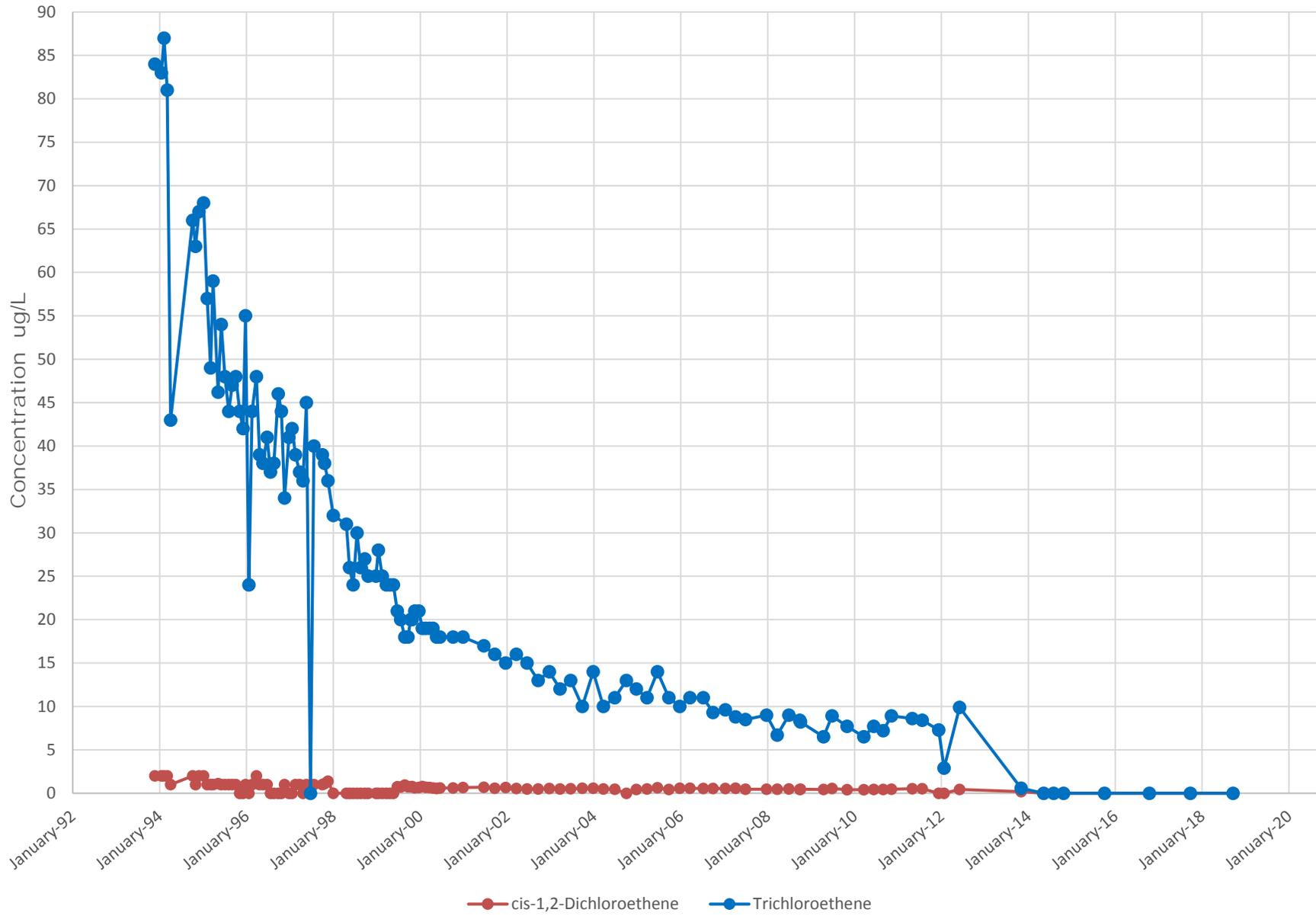
# W54



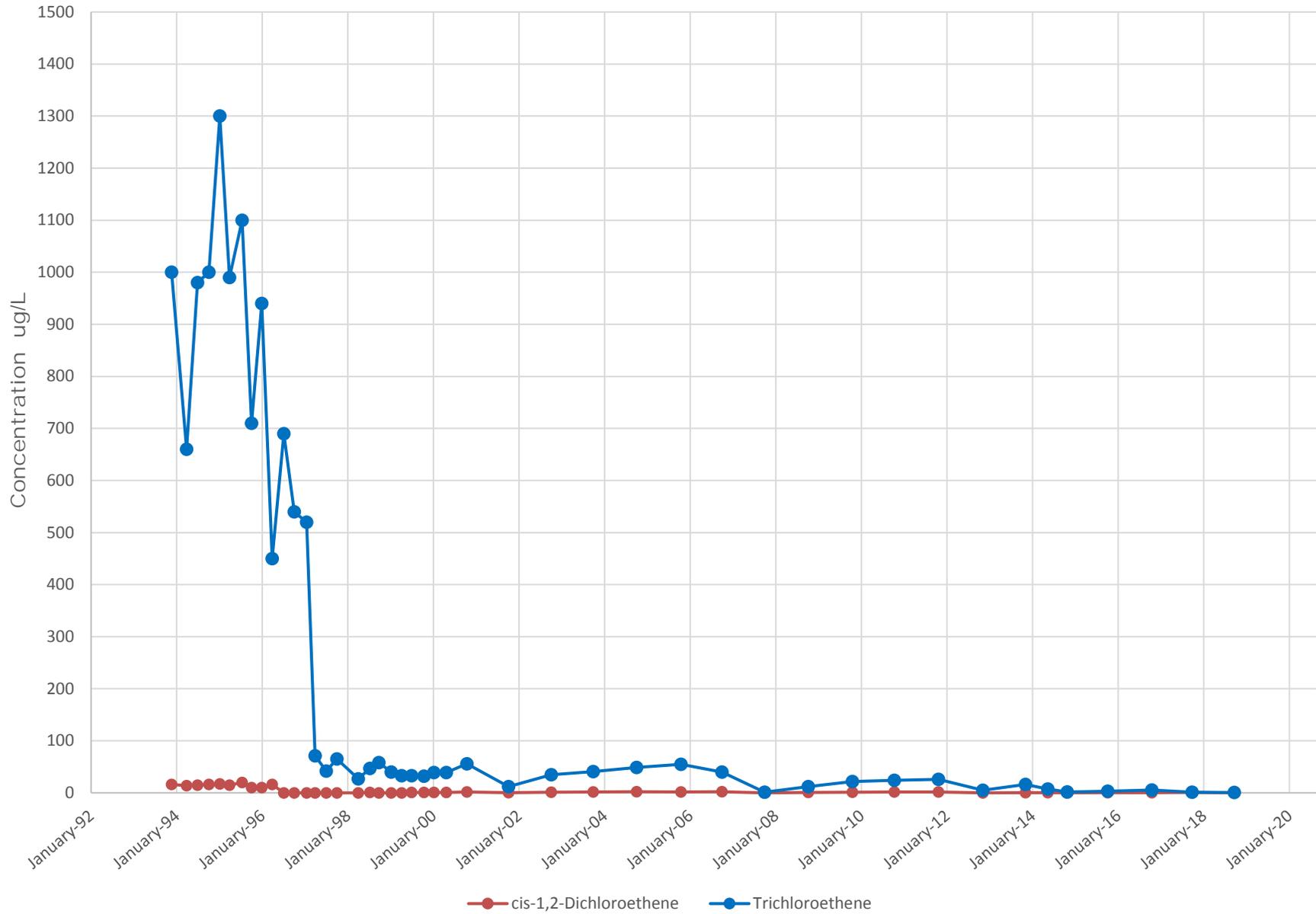
# WSWD



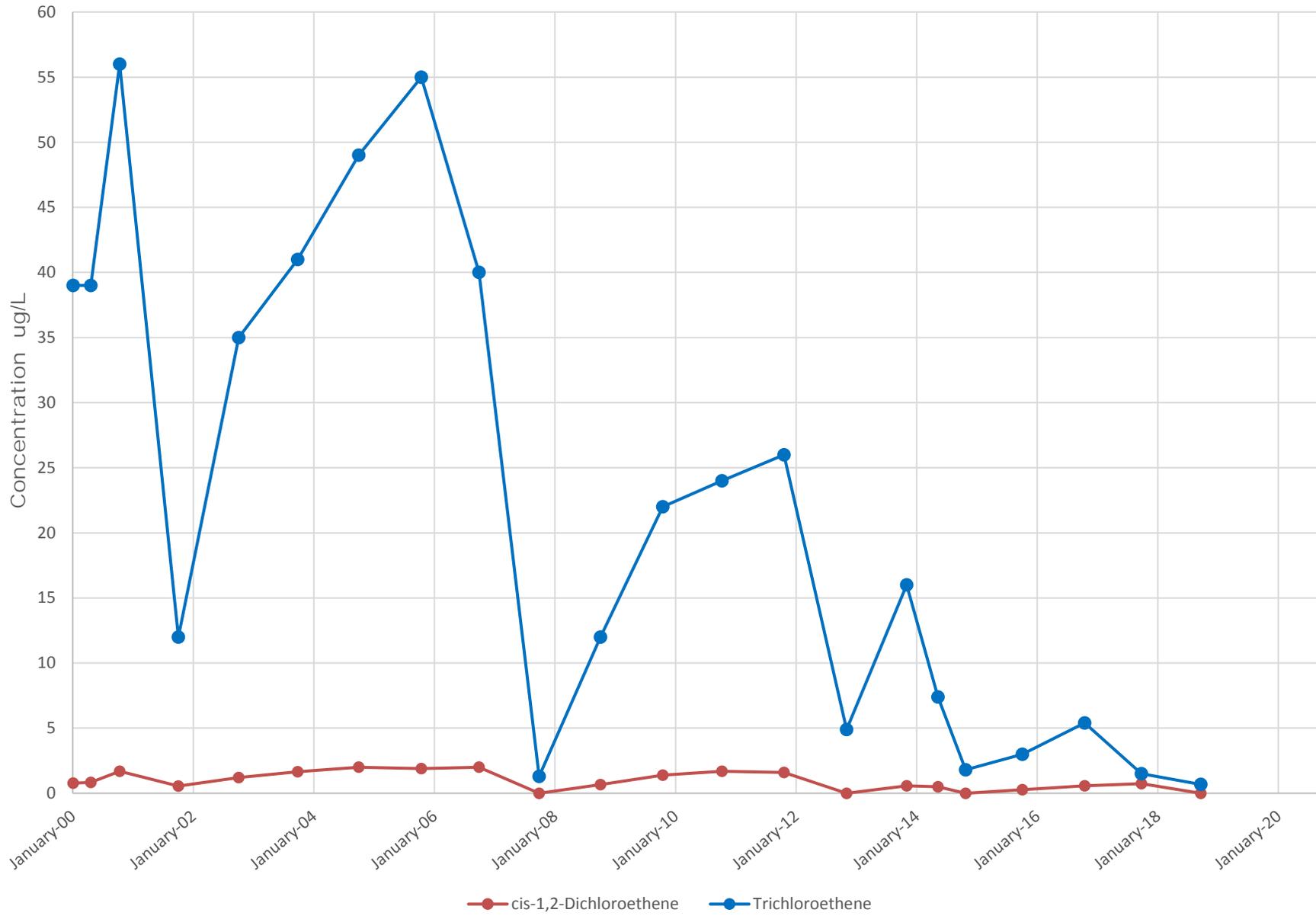
# EW-1



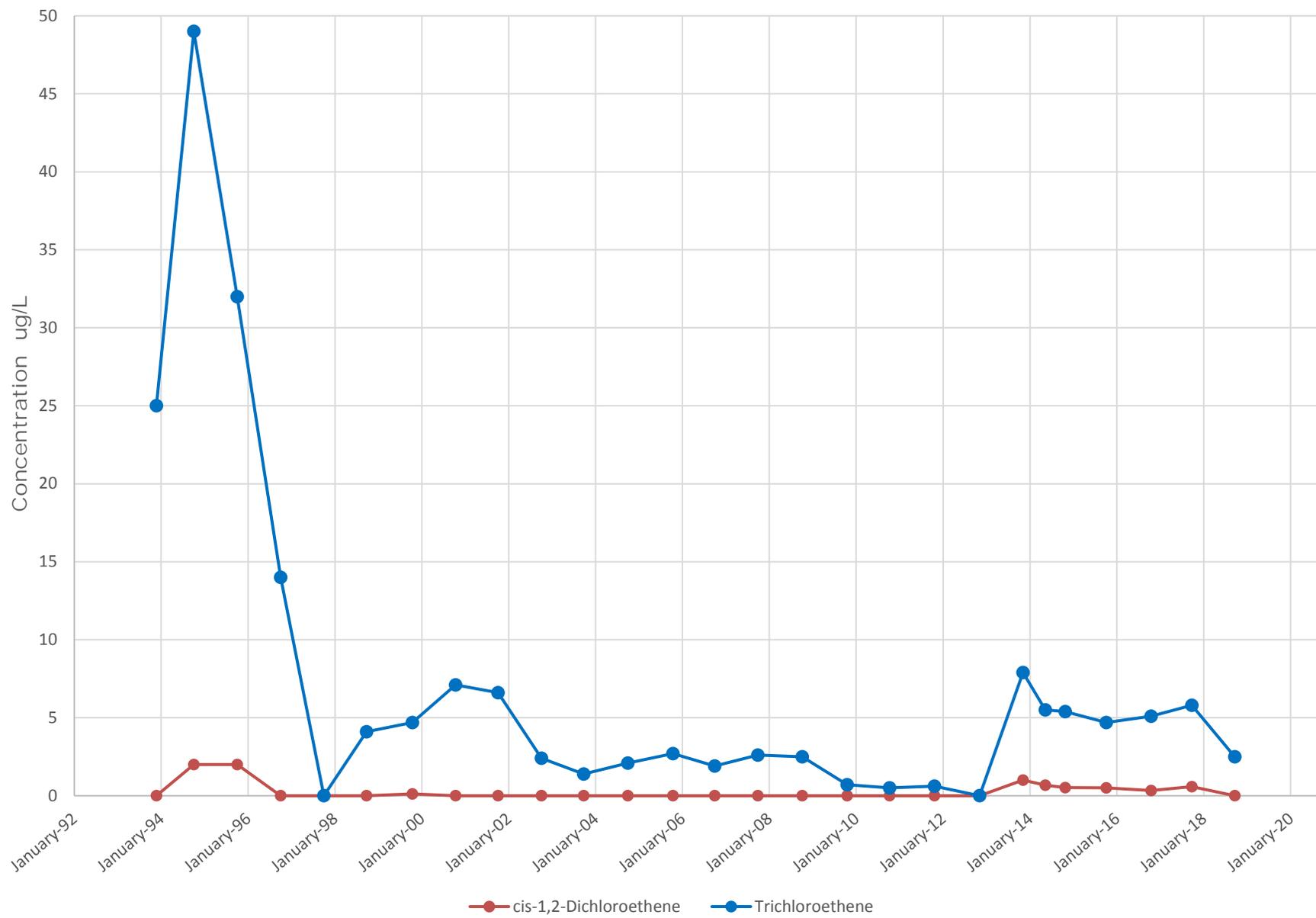
# R4D All Data



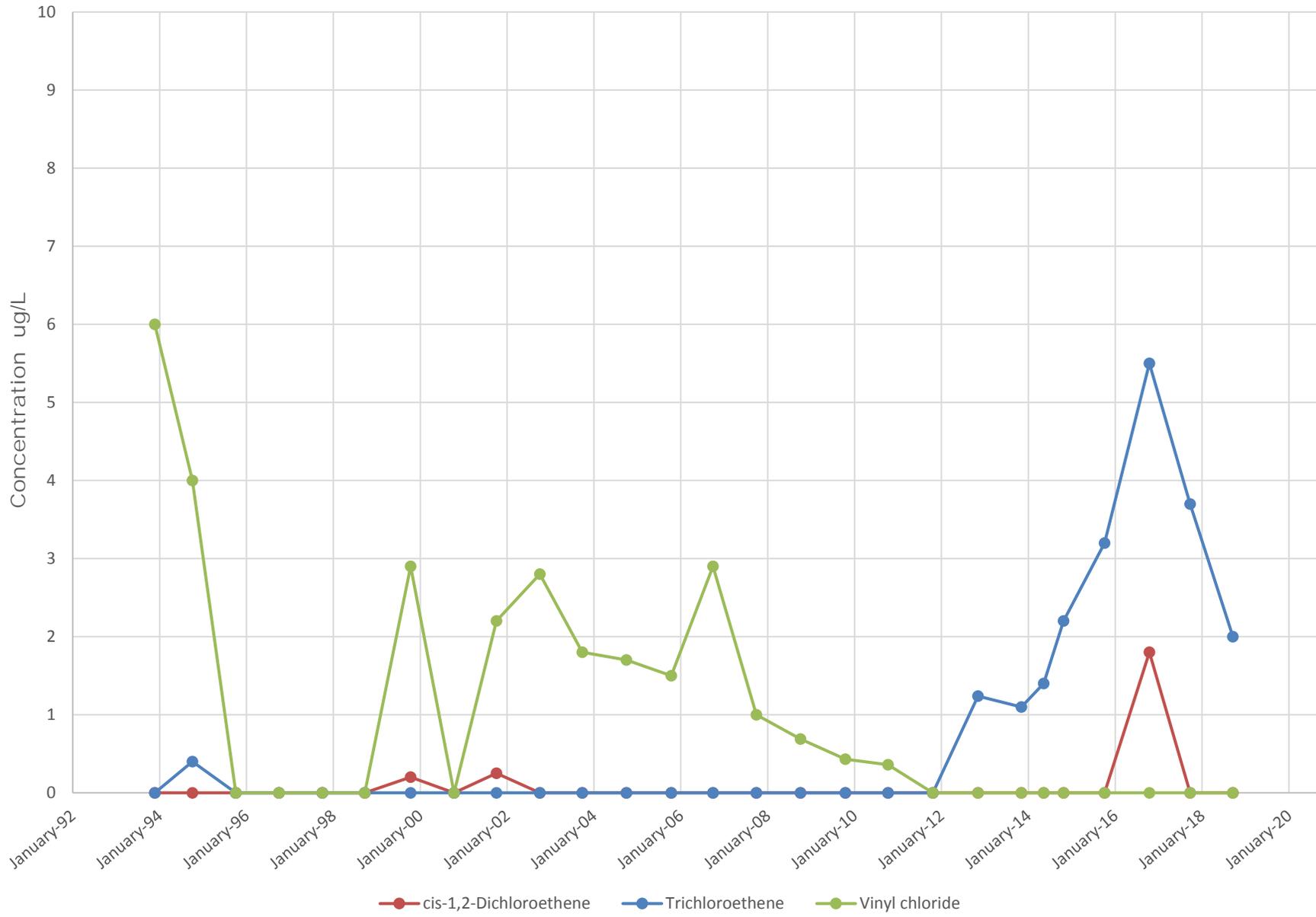
# R4D Since 2000



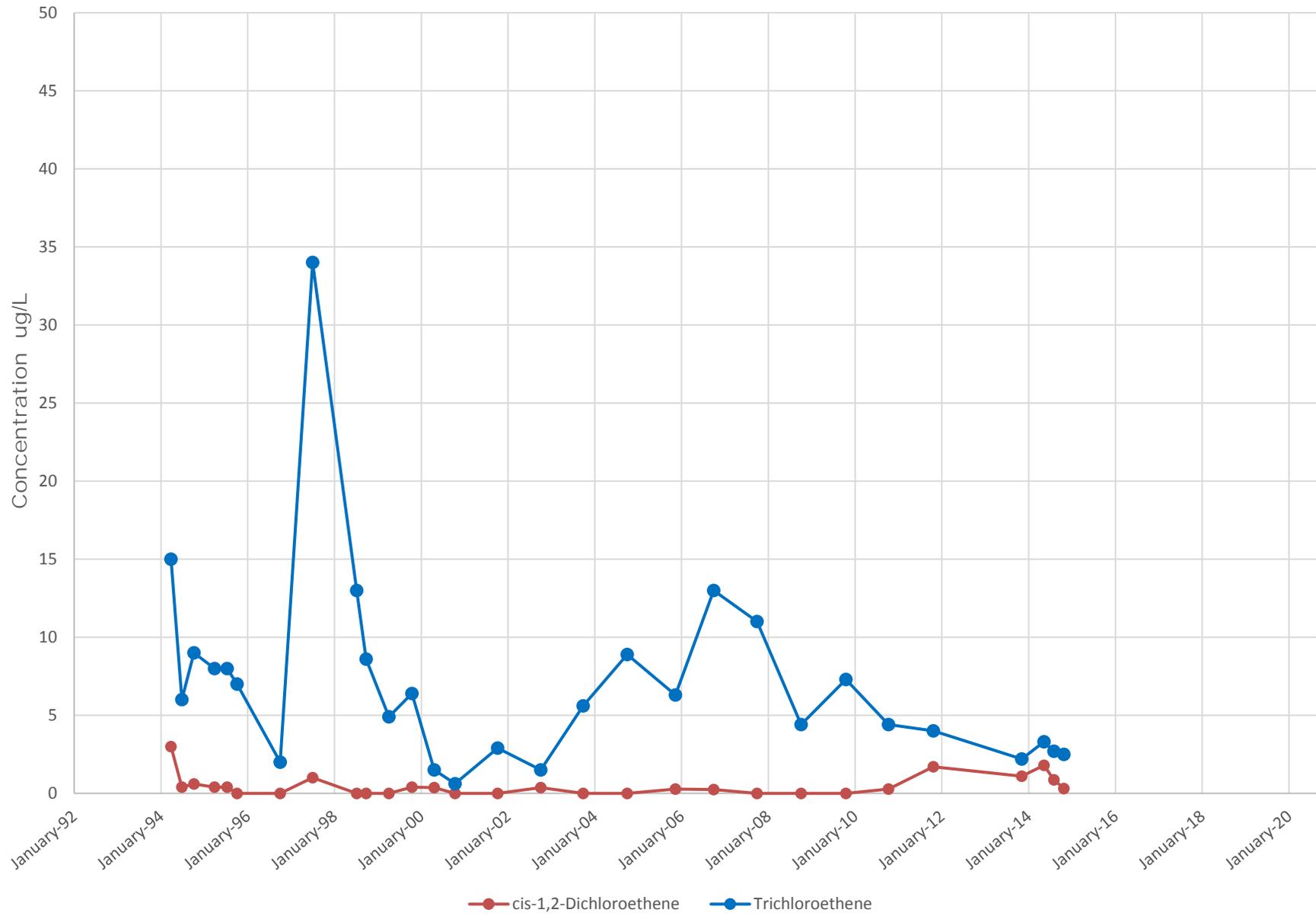
# C2S



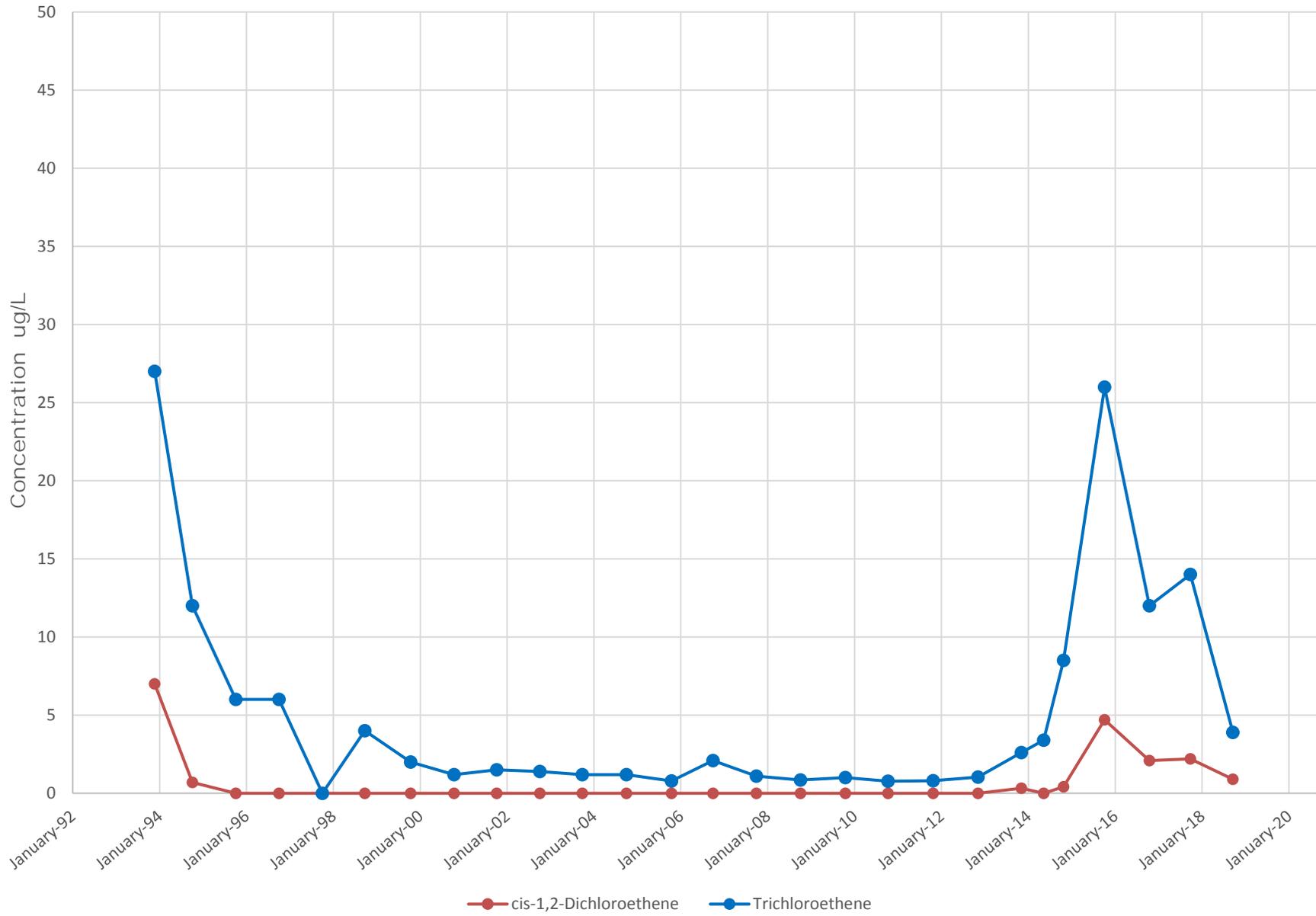
# C4S



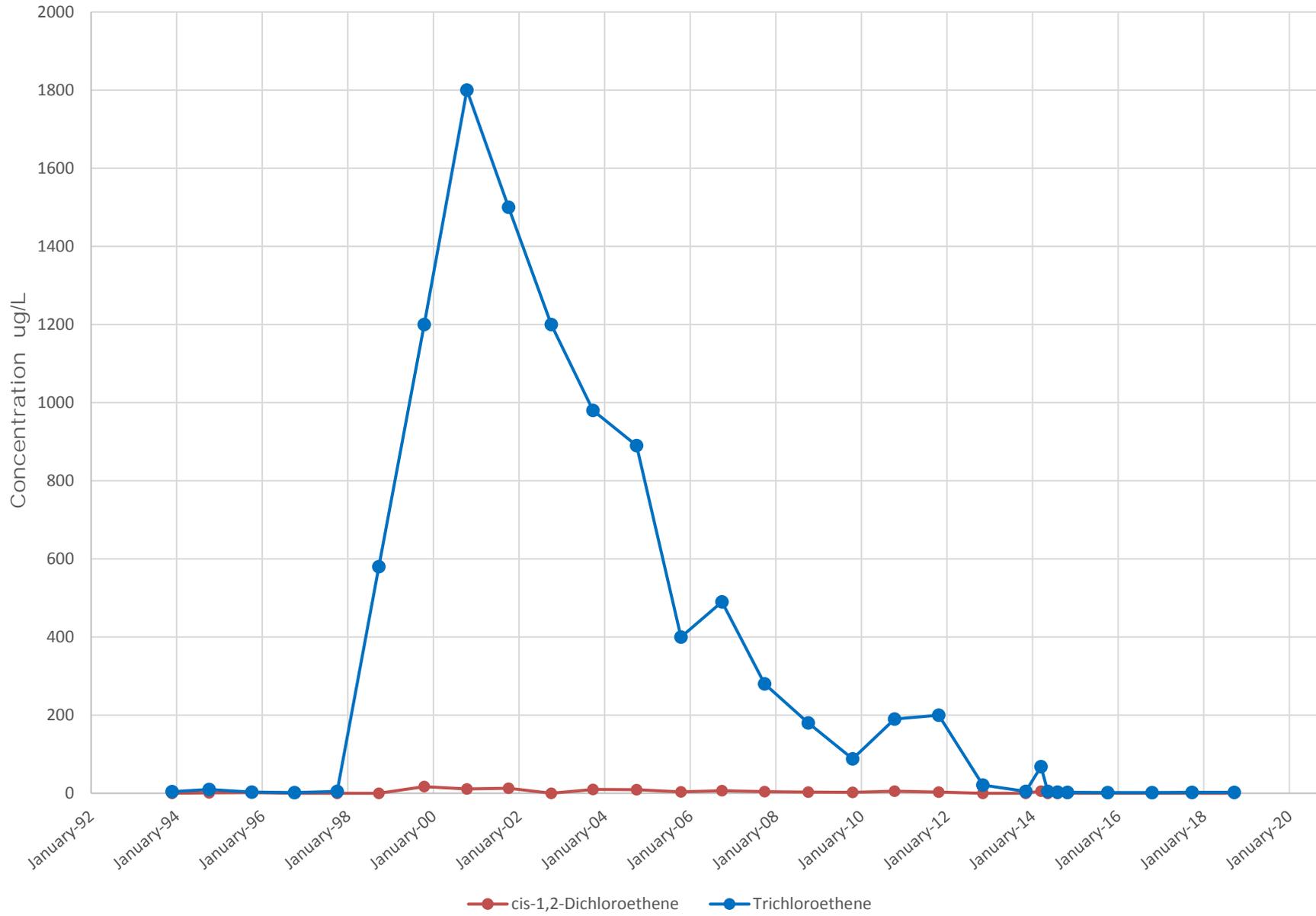
# IWD



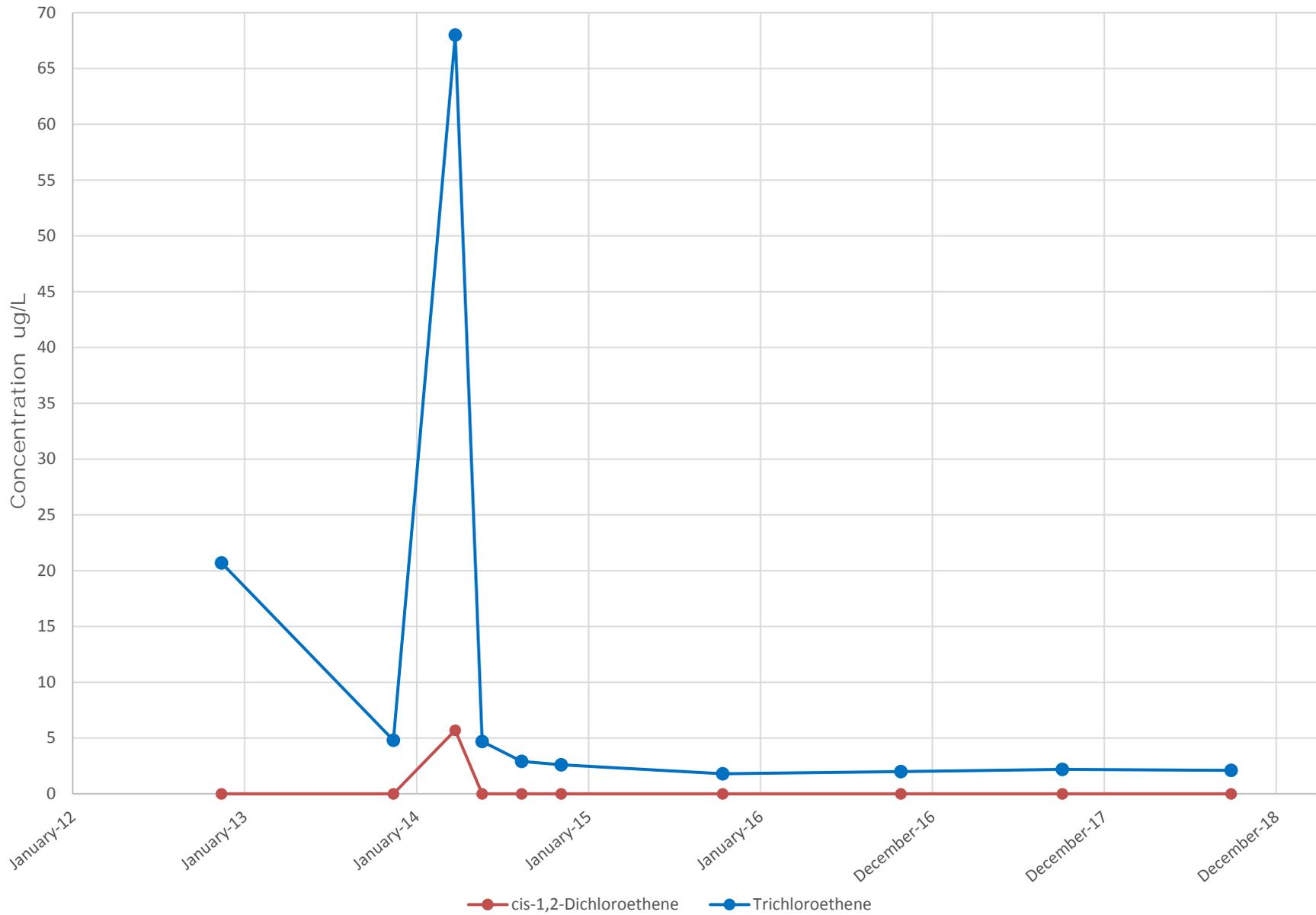
# W52



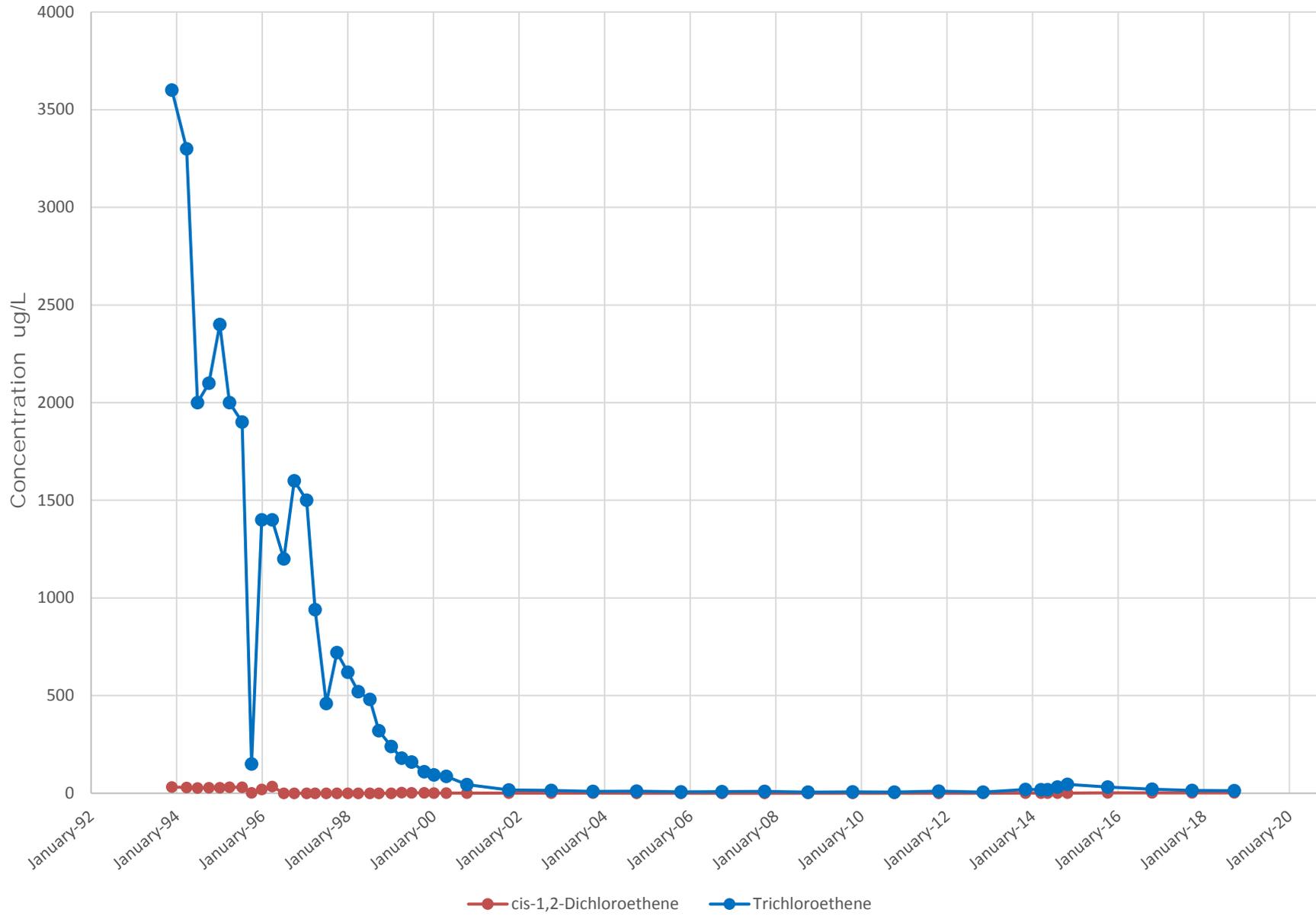
# R3D All Data



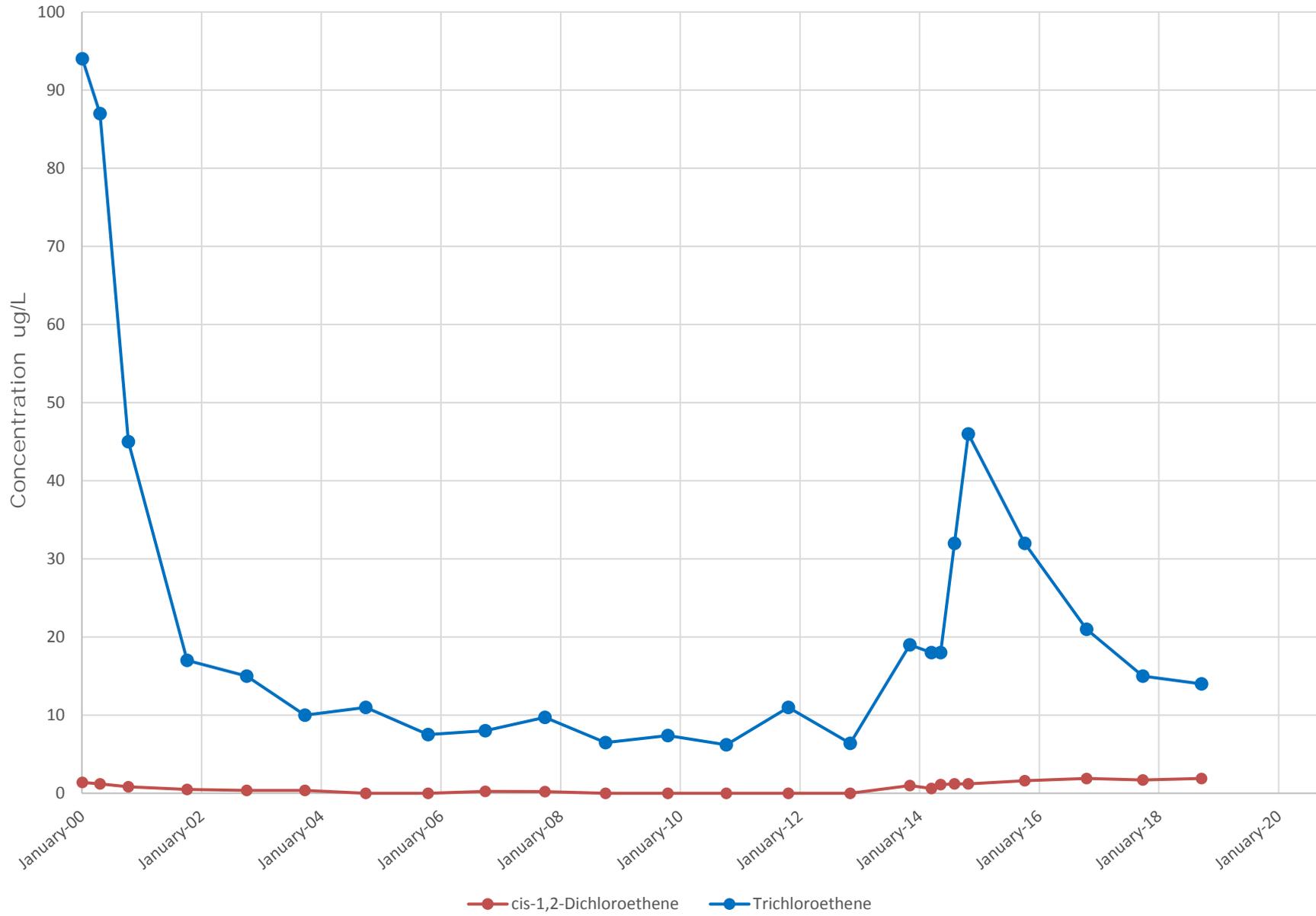
# R3D Since 2011



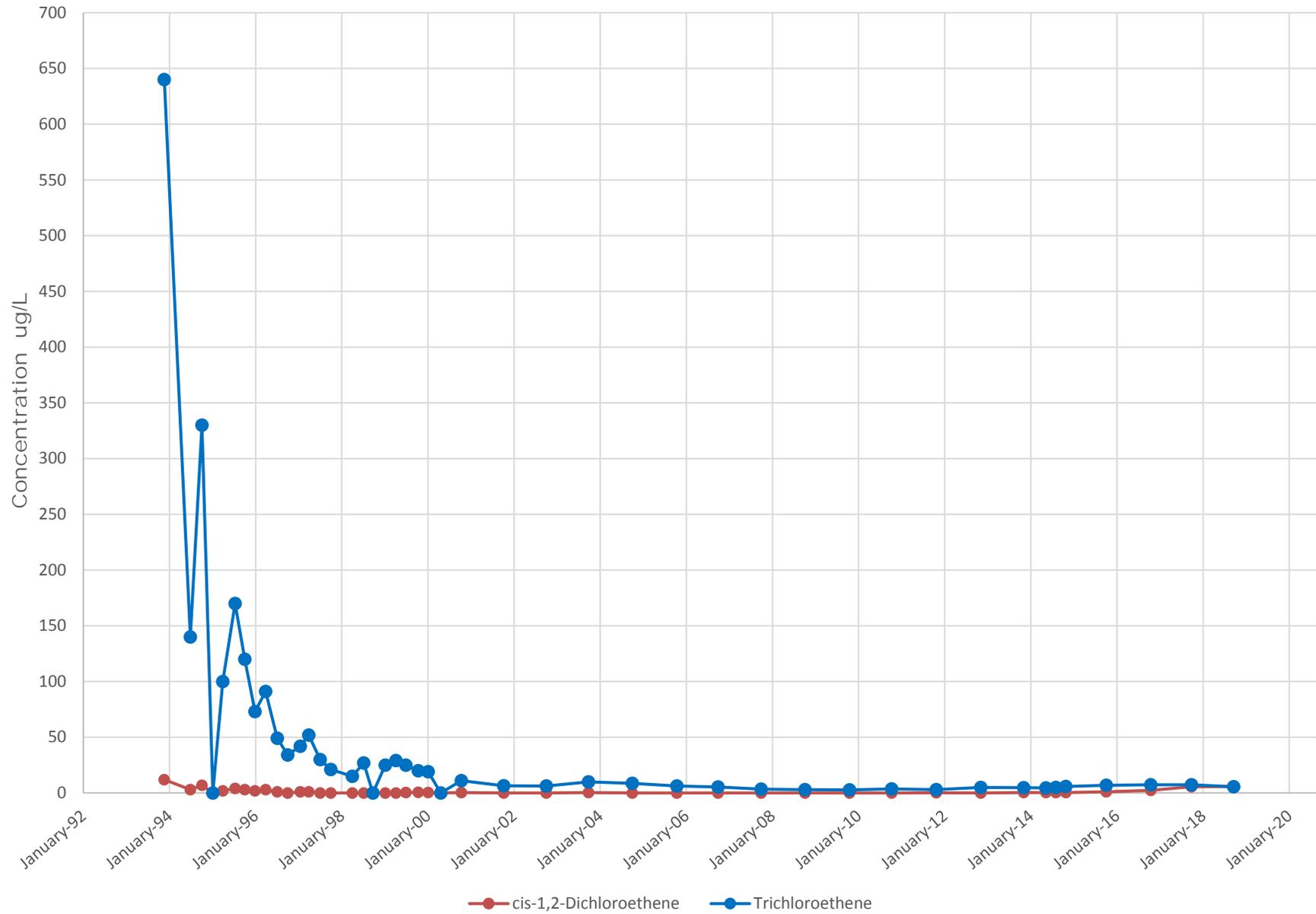
# R2D All Data



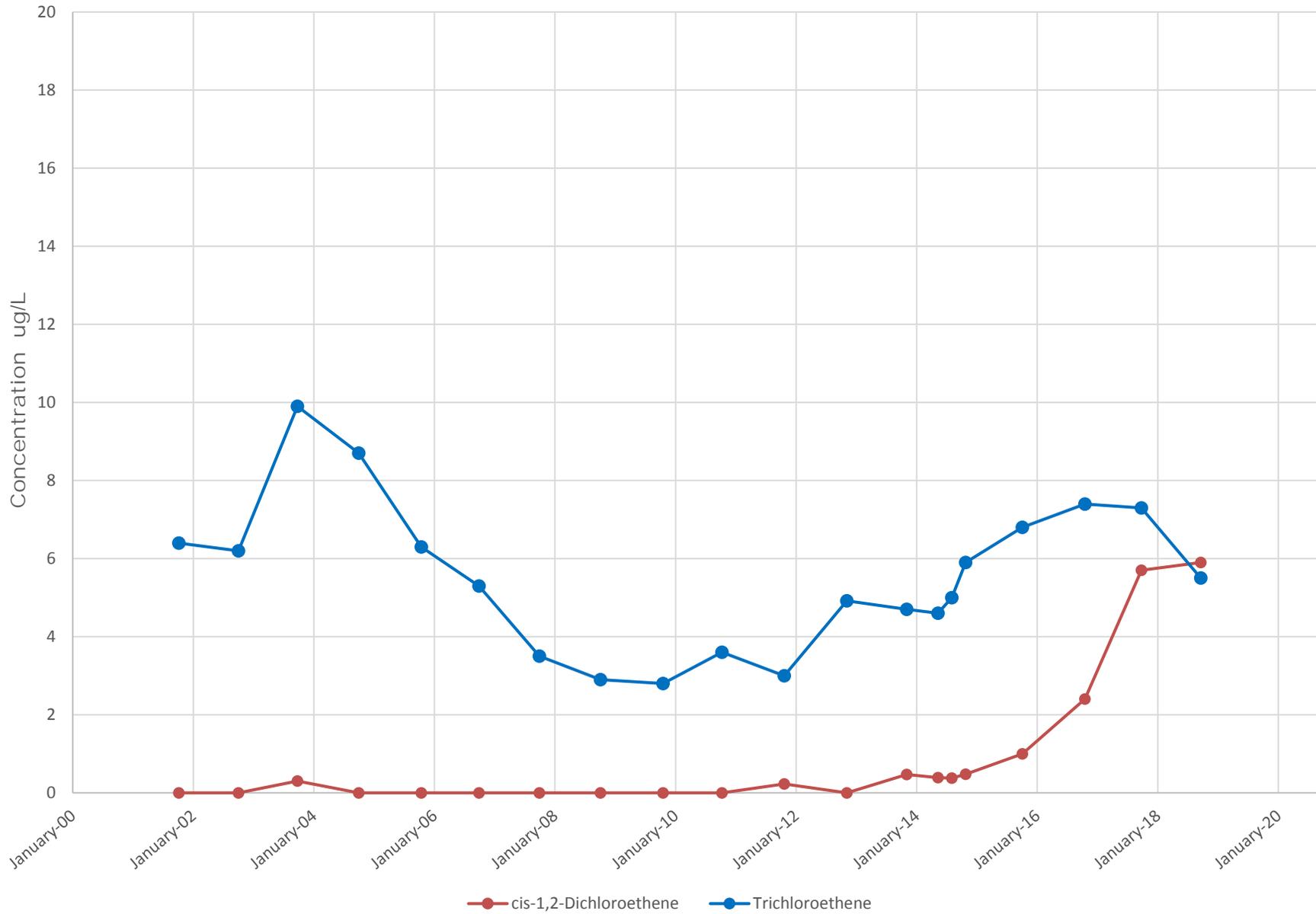
# R2D Since 2000



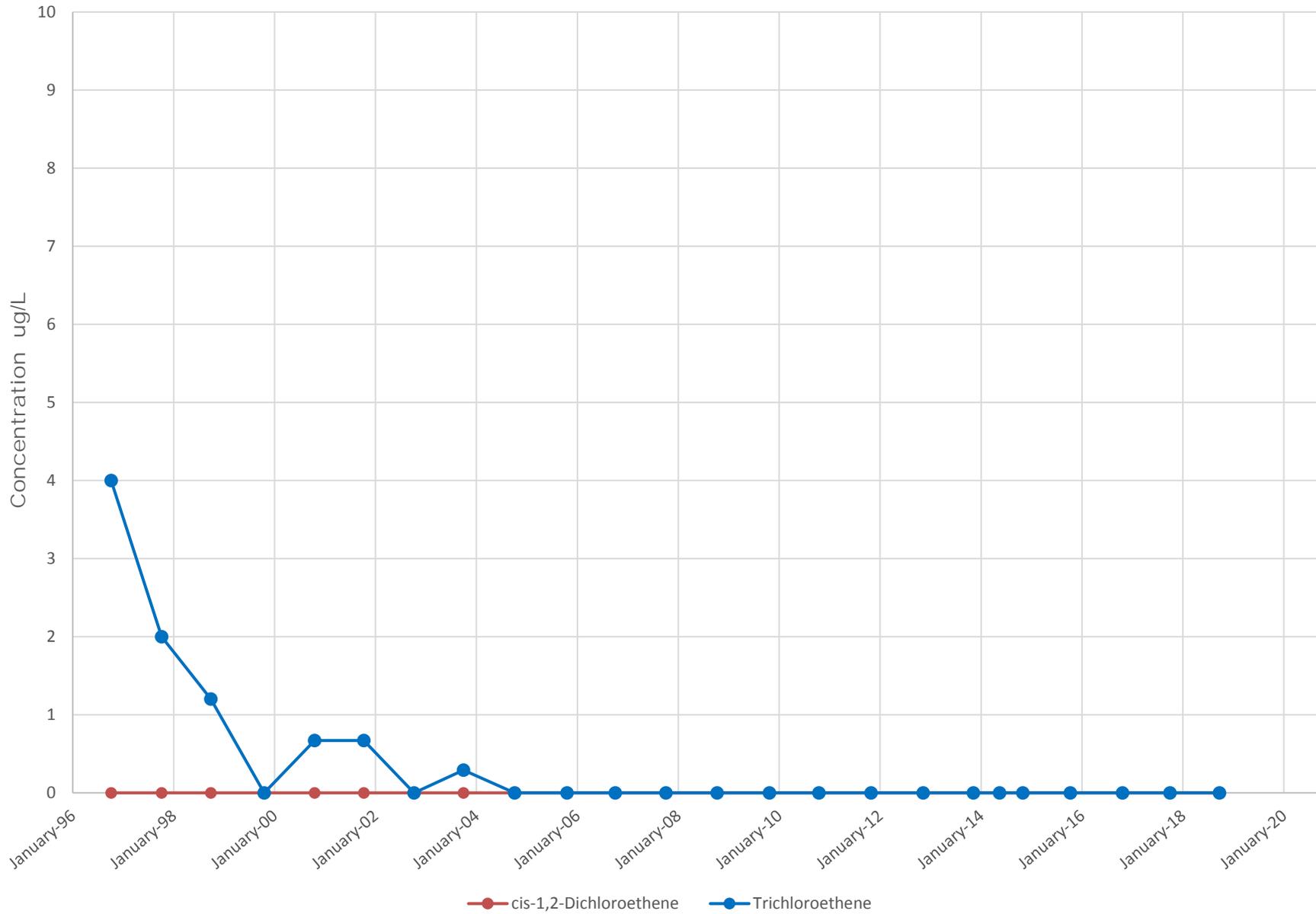
# W55 All Data



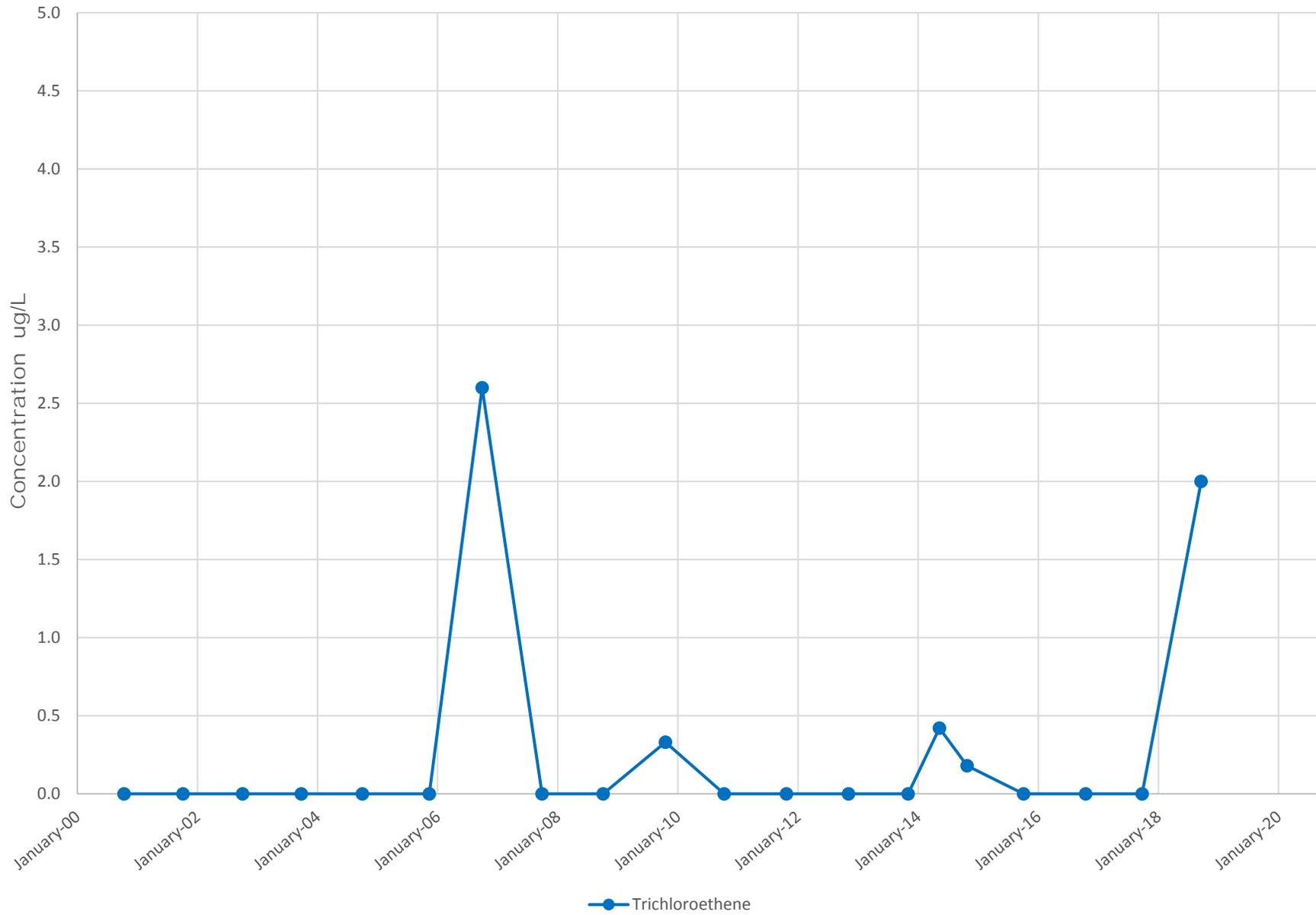
# W55 Since 2000



# W56



# MW1A



# CW6

